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ABSTRACT

Four studies compiled in this document cover career awareness, academic achievement, career decision-making, and other ways of assessing effectiveness. Each area is developed through (1) literature reviews, (2) input gathered from state coordinators of career education and from local practitioners, and (3) reported data which represents application of the specific treatment. The papers include data tables, bibliographies, and appendixes, in addition to extensive descriptions of projects reviewed for the studies. Major conclusions resulting from these studies are reported as follows: (1) Educational programs designed to develop career awareness in students are making statistically significant changes in student development; (2) positive changes in the self concepts and work habits of some students have taken place, and further studies may net more hard data that career education can aid the development of students' acquisition of fundamental skills; (3) career education programs have the potential power to produce career decision-making effects which are specific and desirable, but a sound theoretical research base for prescribing and reporting decision-making activities seems lacking; and (4) students in grades K-12 generally respond positively to participation in career education programs and their attitudes appear to improve with increased exposure to career education programs and services. (TA)

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THE EFFICACY OF CAREER EDUCATION

U.S. DEPARTMENT OF HEALTH,
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THE EFFICACY OF CAREER EDUCATION:

CAREER AWARENESS

by

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John Collie
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INTRODUCTION

The concept of career education has probably received more attention and created more discussion than any other concept to arrive on the American education scene in recent years. It is broadly supported by parents, educators and communities across the nation.

The U. S. Office of Education under former Commissioner Sidney P. Marland, Jr., was largely responsible for the stimulation given to the idea of career education and while the Office tended to avoid suggesting any definition, Dr. Marland wrote the following in American Education (1971):

> . . .what the term 'career education' means to me is basically a point of view, a concept--a concept that says three things: First, that career education will be part of the curriculum for all students, not just some. Second, that it will continue throughout a youngster's stay in school, from the first grade through senior high and beyond, if he so elects. And third, that every student leaving school will possess the skills necessary to give him a start to making a livelihood for himself and his family, even if he leaves before completing high school.

Many statements defining career education have been formulated. There tends to be generic elements within the vast majority of these definitions. For example, Dr. Rupert Evans (1972) stated, "career education is the total effort of the community to develop a personally satisfying succession of opportunities for service through work, paid or unpaid, extending throughout life." In a policy paper of the U. S.

Office of Education (1974), "An Introduction to Career Education," Dr. Kenneth Hoyt, Director of Career Education, USOE, defined career education as "the totality of experiences through which one learns about and prepares to engage in work as part of her or his way of living."

SCOPE OF THE PAPER

There are common elements and characteristics contained in many of the definitions of career education. One of these elements is referred to as career awareness. The authors attempted to review all pertinent literature concerning the evaluation of the career awareness element of career education. A coordinated effort was made to systematically gather appropriate data. Personal visits were made to the U. S. Office of Education and the National Institute of Education to review materials in their retrieval systems. Letters were sent to all state departments of education requesting their assistance in the identification of exemplary programs in their state. Requests for data were then sent to the educators responsible for the identified programs. Participants in the Career Education Mini-conferences sponsored by the USOE Office of Career Education and numerous personal acquaintances were contacted. An ERIC search was conducted. These activities produced a large quantity of information. However, because of the diversity in conceptualizations, implementation methodologies and evaluation designs, a comprehensive state of the art report was not feasible. The scope of this paper is therefore limited to a review of information that is representative of the efficacy of the career awareness element of career education. Selected conceptual statements regarding career awareness from different sections of the country are identified. Various techniques utilized to evaluate career awareness and the subsequent results are also addressed in this paper.

CONCEPTUALIZATION

The information reviewed reflected disparities in the conceptualization of career awareness. Datta (1975) reported that theories of career development can be categorized into economic, psychological and sociological domains. The findings of the studies reviewed tend to support this view. The authors have presented selected conceptualizations as examples of each theoretical domain.

Economic Based Conceptualizations

The Curriculum Development Center, Vocational Education, University of Kentucky (1972), described career awareness as "a knowledge of the total spectrum of careers."

Psychological Based Conceptualization

Herr (1972) stated that students need clarification of those aspects of the self--e.g. interests, capabilities, values--which need development for a lifelong process of planning and decision making. Within the individual must be fostered a conscious awareness that he does have a choice.

Sociological Based Conceptualization

Leifer and Lesser (1975) stated, "rarely are career choices made by matching the demands made by various sorts of work with the personal skills and interests of those selecting the occupation." While not developing a statement with regard to the specific term career awareness, Leifer and Lesser did identify elements of a desirable career education program. This program would for example include parental, peer and school influences; occupational models available in the community, including parents, relatives and neighbors; rate and direction of social mobility; and availability of training and apprenticeship opportunities.

Many of the conceptualizations, however, tended to combine domains. In fact, the majority appeared to be based on a combination of psychological and economic theories. Representative definitions of career awareness are described in the following paragraphs.

The Business and Professional Women's Foundation (1974) stated: "Awareness involves those basic experiences that are introductory in nature and is concerned with the development of attitudes, interests and elementary understandings as these relate to individuals as they learn about the world of work."

According to Gibson (1973), "At the career awareness phase of a school program emphasis should be given to attitude development, decision making, and self awareness as well as awareness of and knowledge about the broad characteristics and expectations of work."

The National Institute of Education paper, "A Conceptual Framework and Rationale for the Career Awareness Division," April 1975, cited four elements that encompass the conceptual dimensions of career awareness. These were defined as follows:

> Occupational Knowledge: factual information about the skills and educational requirements of an occupation, the nature of the occupation in terms of its processes and products, its potential for access, advancements, and benefits.
>
> Occupational Preferences: the set of occupation or adult roles which fall on a continuum of aspiration, preference, interest, or liking.
>
> Occupational Values: beliefs concerning the status of occupations and what an individual considers important with respect to aspects of work and the place of work in adult life.
>
> Occupational Self Concept: beliefs an individual holds about the abilities he or she has and how successful he or she would be at an occupation or occupational role.

Spradle (1973) referred to lifestyle in describing career awareness:

> Students must learn about the occupational cultures they will be a part of for any particular career. The world of work. . . is a lifestyle, a set of values and assumptions. It means membership in a group with its own customs and mores.

A report published by the Indiana State Department of Public Instruction (1973) described career awareness as an elementary program which would include self awareness and a realistic awareness of the world of work which will assist students in gaining respect for work and appreciation for its importance to our society.

The Houston Independent School District (1972) reported attempts: "To develop, at the elementary level, occupational awareness as an integral part of the instructional program so that each pupil may begin to develop self awareness and to formulate career thoughts, to ensure that eventually each pupil develops a clearer perception of himself and sees himself as a person of worth with a realistic and positive attitude toward becoming a productive worker."

Hoyt et al. (1972) summarized the thrust of the elementary school career education program:

> at the elementary school level, the components of career education most needed will emphasize helping students acquire positive attitudes toward work, toward all levels of occupations found in the society, and toward themselves as prospective workers.

The USOE (Hardwick, 1971) statement of career awareness objectives represents a conceptualization basically attainable at the K-6 level. The objectives are:

- To develop in pupils attitudes about the personal and social significance of work.
- To help each student become aware of himself as an individual and as a group member.
- To develop student awareness of many occupations and to expand the career aspirations of each student.
- To improve overall pupil performance by unifying and focusing basic subjects around a career development theme.

In summary, the review of information indicates that there are various conceptualizations of career awareness. The majority are concerned with the various aspects of the world of work, attitudes toward work and knowledge of one's own capabilities, values and interests.

Although the career awareness element of career education has been described as a concept which starts in kindergarten and extends through life, the major emphasis appears to be at the elementary school level.

A REVIEW OF EVALUATIVE STUDIES OF CAREER AWARENESS

The purpose of this paper is to review representative studies that are indicative of the efficacy of the career awareness element of career education. In many instances the evaluation results reported were subjective in nature and did not provide quantitative information. The large number of studies in this category, however, represent a positive statement for the efficacy of career awareness. Even though many of the applied evaluation techniques fall short of experimental-design evaluation standards, these studies should not be ignored. The salient fact is that, in almost all instances, the multitude of studies reviewed showed positive results.

This section of the paper addresses the general state of the art in career awareness evaluation and presents quantitative studies which are indicative of the efficacy of career awareness. Hoyt (1975) alluded to the pressures which may result in the premature evaluation of education programs.

> The birth of a new idea properly precedes its expansion into an educational concept. The for-

> mulation of a new concept properly precedes a concern for testing its efficacy. Global evaluation of a concept's efficacy properly precedes the formulation and testing of research hypotheses aimed at discovering optimal means of implementing the concept in educational practice. The critics of a new idea in Education typically use, as one weapon, a call for definitive research results even prior to the time the idea has been developed into a tentative concept form. This short set of generalizations could, I believe, be illustrated repeatedly by those who study the history of new ideas in American Education. Career Education is only the latest example.

A similar statement concerning evaluation of new education programs is reported by Datta (1975) who attributes to Timpane the notion that:

> ...when an idea is sufficiently attractive, no one will wait for evaluation information before mounting large programs while if there is enough caution to give time for evaluative studies, no one will be really interested in the results.

Datta further stated that lack of a research base describing the extent of the problem, lack of explicit and consistent objective statements, added to the technical limitations of measures of career development, suggest that programming has preceded ahead of the ability to evaluate program effectiveness.

The problems resulting from inadequate measurement instruments and faulty evaluation techniques are definitely evident. Some researchers have reported partial success in measuring the area of career knowledge. However, attempts to measure such elements of career awareness as self concept, societal responsibilities and values have met with little success.

Raleigh County West Virginia (1972) educators "...recognized that the exemplary aspects of career education could not result in evaluation procedures and instruments could not objectively predict, assess or measure specific areas of career awareness..." and based their evaluation procedures on subjective information obtained from interviews with individuals and groups. A majority of the projects' results reviewed supported this position. Measures for objectives in the affective domain tend to be unavailable and measures to determine the impact of one variable on another appear to be even more difficult to obtain.

In the cognitive domain problems also exist. Tuckman (1974) stated that:

> The measurement of career awareness, meaning knowledge of career characteristics and requirements, necessitates a cognitive instrument dealing with specific careers. In terms of general career awareness, the problem becomes one of deciding which careers to ask questions about; in terms of specific career awareness, the difficulty lies in finding or building tests in the large number of career areas that students might choose to pursue. Instrumentation in this area is also hard to find.

Wise, Charner and Randour (1975) indicate that the kinds of problems reviewed above result in an unequal handling of the measurement of career awareness. They maintain there is "a plethora of literature on educational-occupational aspirations and attainments, a small number of studies on occupational knowledge, and a paucity of research on occupational values and occupational self concepts."

Another aspect of the general problems associated with evaluation is the relatively low priority assigned to the collection of evaluative data. Teachers and other potential users do not appear to recognize the positive benefits which can accrue to them through timely program evaluation. There is a reasonable possibility that there is a direct relationship between inadequate instrumentation, poor evaluation techniques, unequal handling of variables, and educators' perceptions of a lack of worth in evaluative information. Two studies reviewed reflect the priority which teachers assign to evaluation.

Holloway (1972) found that both elementary and junior high school teachers award low rankings to competencies which centered around evaluation, manpower trends and theories of career development. A 1974-1975 needs assessment survey of teachers in the Dallas Independent School District resulted in a similar low rating for evaluation. Dallas teachers recorded a negative score (perceived negative need) for research and evaluation services. Only two of the fifty-six topics rated received lower need scores.

A comprehensive review of career education project evaluations was conducted by Bruce W. Tuckman and Joseph A Carducci (1974). Their report classified the evaluations into experimental and quasi-experimental evaluative studies (i.e. quantitative data utilizing experimental and control groups, pre- and posttests or posttest only design), descriptive studies (i.e. quantitative data utilizing pre- and post-testing of treatment groups only) and case studies (i.e. treatment group only and qualitative data). Chart 1 is a listing of studies taken from the Tuckman and Carducci study which deal with career awareness and self awareness.

The following additional studies which are pertinent to career awareness and self awareness project evaluations were reviewed. For purposes of this report only quantitative evaluations are presented.

The Pontiac Vocational Career Development Program (1971) attempted to increase the occupational knowledge and self concept of students. In evaluating the project the Occupational Knowledge Test (O.K.T.) and the Fantasy, Ability and Reality Scales (F.A.R.) were utilized. The three major findings were: (1) Students showed significant gain in their level of occupational knowledge, (2) Upper elementary children showed greater gain in occupational knowledge than did lower elementary children, and (3) At the end of the program students selected occupations of higher rank than they did at the beginning of the program.

Prince George's County Public Schools in Maryland (1975) included the following question in evaluating their career education program. "Do pupils involved in career education acquire more knowledge about the world of work than do controls?" The results of their study found that at each grade level (with

CHART 1

STUDIES REVIEWED BY TUCKMAN AND CARDUCCI RELEVANT TO CAREER AWARENESS AND SELF AWARENESS

Author and Site of Study	Grade Level	Instrument	Analysis	Findings
Cochran and Weis (1972) Dayton, Ohio	9-10	Ohio Vocational Interest Survey	Analysis of covariance	"...student from the vocational school were better informed about career choice..."
Holstein (1972) Lincoln Co., West Virginia	1-6	Homemade test of occupational awareness	Analysis of covariance	"...career education students outperformed control students on all measures."
Ovard (1973) Utah	6	Not specified	Chi square	"...students showed favorable change in attitude toward work.."
Sims (1973) Cleveland, Ohio	5-6	Job information questionnaire	Analysis of variance	"...treatment schools students had acquired more job information than the control."
McNulty (1974) Massachusetts	11-12	Career Maturity Inventory	Analysis of covariance	"...positive correlation between scores for all students.."
Warren (1974) Kansas	6-8	Career Maturity Inventory	t-test	"...significant differences in mean scores in favor of treatment group."
Bariolo (1972) Alameda Co., Calif.	Elem.	Occupational Information Survey	t-test	"...yielded greater gains for treatment students than for controls at elementary level."
Cunningham (1973) New Britian, Conn.	Elem.	How I See Myself Scales	t-test	"...showed significant differences between the control and experimental groups."
Dennard (1973) Clayton Co., Geo.	4	Student Knowledge of Careers	not specified	"...fourth graders in program had greater knowledge of careers than those not in program."
Holden (1973) South Carolina	Elem.	A battery of cognitive and affective instruments	not specified	"Kershaw and Chesterfield counties were fairly successful in efforts to teach elementary school students about careers."
Peck (1973) District of Columbia	K-9	Self Observation Scale	not specified	"...showed CDEP children to have better self-concept than controls."
"	"	Work Attitude Survey	not specified	"...revealed CDEP students had more positive attitudes toward work than controls."
"	7-9	Occupational Values Inventory	not specified	"...students were realistic in their career planning."
"	6-9	Career Awareness Development Inventory	not specified	"...students were able to relate school-learned skills to work situations at reasonable level of proficiency."
Young (1971) New Orleans	1-8	Attitude Toward Work Inventory	t-test	"A significant positive gain was found for students in grades 1-8."
Harmond (1973) Harrington, Maine	7	Occupational Knowledge Test	t-test	"...significant gain in mean scores of seventh grade students."

the exception of ninth grade) the experimental groups scored higher than the controls. Statistical significance was reached at grade levels 6, 7, 11 and 12.

The Career Based Curriculum Project in Monroe, North Carolina (1975) evaluated two goals for their elementary program relative to self awareness and career awareness. Goal 1: To increase each child's self awareness, encouraging a positive self concept. The Self Observation Scales (SOS) were used to measure the students' self awareness. Statistically significant differences occurred on six of the eight scales for third graders. Goal 2: To increase the pupils' awareness of the many occupations and job roles in the community. This goal was measured by asking the students to "list as many kinds of workers as you can." Students in the third grade Project schools listed more at the .05 level, than did third graders in the control schools. The mean number of workers listed by sixth graders in Project schools was significantly higher than sixth graders in the control schools at the .01 level.

The Research and Development Project in Career Education in Wichita, Kansas utilized the Career Knowledge test at the primary level in the pilot elementary schools. The Occupational Similarities Scale showed a significant difference at the .05 level between pre- and posttests on students at the K-2 level. At the Intermediate level (3-6) the Orientation of Career Concepts (OCC) was administered and statistically significant differences were found on the Vocational Vocabulary Scale (.01), the Working Conditions Scale (.05) and the Worker's Earnings Scale (.05).

Unified School District No. 250 of Pittsburg, Kansas utilized the Self Observation Scales and the Career Maturity Inventory to evaluate their career education programs. Approximately 200 students randomly selected from all six of the elementary schools in Unified School District No. 250 were tested as the experimental group. A parochial school which did not have a career education program was used as a control group. At grade three the results of the Self Observation Scales showed that out of eighteen possible comparisons (i.e. six schools x 3 scales) the schools in the Unified School District No. 250 exceeded the national norm of fifty and the average percentile score of the control group in twelve cases. At grade six the results show that of a possible thirty comparisons (i.e. six schools x 5 scales) the sixth graders exceeded the national average of fifty in twenty-four of the thirty situations. These students also exceeded the average percentile score of the control group in twenty-eight of the thirty comparisons. The evaluation of the ninth graders used the Career Maturity Inventory and a statistically significant difference was found between the experimental and control groups on Part 2: Knowing About Jobs.

A report on a Research and Development Project in Career Education (1974) from the Department of Education in Pennsylvania presents a study to determine the effects of project activities on the children involved. Matched samplings of third and fifth grade students were compared. The comparisons, made between highly involved and moderately involved students, revealed that the third graders who were highly involved could list more occupations in one minute than their less involved counterparts. The highly involved fifth graders were superior to the moderately involved group with respect to self concept development and attitude toward school.

Behavioral Research Associates evaluated the Pima County Developmental Career Guidance Project (1975). They concluded that:

> Students exposed to career education demonstrated a greater awareness of the world of work. On every index designed to measure career-awareness, economic-awareness, and decision-making, the students with career education exposure scored higher. One of the most consistent findings in the data is that students with career education exposure are more knowledgeable about a variety of occupational clusters, representing the entire range of jobs. This finding reflects favorably on the Arizona Career Education Effort, and highlights one major goal of career education which is to expand the students' conceptualization of the economic marketplace.
>
> Students exposed to career education: (1) have knowledge of a wider range of occupations both between and within occupational categories, (2) have more ability to evaluate the skills needed in preparation for certain occupational choices, and (3) have more self-confidence that their goals are both realistic and achievable.

Pima County also includes an evaluation of self awareness. Their findings suggest:

> One of the most promising findings this year is related to the area of self awareness. Students in the high career education group were more certain of attaining their educational and occupational aspirations, rated themselves favorable relative to other students in their grade level, and expected higher achievement for themselves compared to students in the low involvement group. Since there were no population differences in the two groups, these data demonstrate project efforts in the area of self awareness have had some success this year. Efforts should continue along these lines next year, since the findings this year are more significant in the trend that is seen, rather than in the statistical differences between high and low exposure students.

"An Evaluation of Vocational Exemplary Projects" was prepared by Development Associates, Inc. (1975). Forty-five projects were studied utilizing a variety of measurement instruments including the Career Maturity Inventory to determine significant differences between participants on eight outcome questions relevant to the study. Chart 2 is taken directly from their report to show the findings of the evaluation.

CHART 2
Summary of Conclusions for Outcome Questions Across all Projects by Student Group*

Student Groups / Outcome Questions	6th Grade	9th Grade	12th Grade			
			Participating Teacher	Counseling Group	Work Experience	Skill Training
Are student participants able to identify a greater number of occupations than non-participants? (Q1)	Yes	Yes	Yes	Yes	No	No
Do students demonstrate more familiarity with tasks and functions associated with selected occupations than the comparison group? (Q2)	No	Yes	Yes	Yes	No	No
Are student participants more familiar with the requisites associated with selected occupations than the comparison group? (Q3)	Yes	No	No	No	No	No
Do student participants score higher on pre-vocational, job readiness tests than the comparison group? (Q4)	Yes	No	No	No	No	No
Do student participants indicate more positive attitudes toward employment than non-participants? (Q5)	Yes	No	Yes	No	No	No
Is the variety of careers being considered by individual participating students greater than that of students in the comparison group? (Q6)	No	No	No	No	No	No
Do more student participants indicate having a career plan than the comparison group? (Q8)	--	No	Yes	No	No	No
Do more student participants cite their career preference as their expected career than non-participants? (Q10)	--	--	No	Yes	No	Yes

*The questions were answered "yes" if there was an overall significant difference in favor of participants for any of the criteria used to assess the question.

A study was conducted in three elementary schools in the Fort Osage Public School District R-1, Independence, Missouri (1974). The purpose of the study was to test the effect of in-service teacher training in career education on the achievement of students. The study consisted of two experimental treatments (Methods A and B) and a conventional treatment (Method C). Method A refers to the approach to teaching selected career education concepts by teachers who had received a three-week orientation to the career cluster concept and who had written curriculum oriented to the cluster concept over an additional three-week period. Method B refers to the teaching of selected career education concepts by teachers who had received a three-hour orientation to the career cluster concept, who had not written curriculum oriented to the career cluster concept, but who taught the curriculum which had been developed by their colleagues in Method A. Method C refers to the conventional approach to teaching fourth and fifth grade elementary school students. The teachers were encouraged to teach the concepts of career education but were given no assistance in securing career-oriented career units developed by their colleagues in Method A. As a result of testing, the students who experienced Treatments A and B made significantly higher gains in achievement of career awareness and self awareness.

Westborough Junior High School, South San Francisco provided the evaluation data on their Career Education Project (1975). They give the percent average loss or gain on pre- and posttests of the target school and the control schools on three scales:

self-awareness, occupational information and school/college information. The results are shown in Chart 3.

CHART 3

Project 1690: % loss or gain shown between September 1974 Pretesting and Posttesting, May 15, 1975

SUMMARY OF COMPARISONS BETWEEN TARGET AND CONTROL SCHOOLS

MATCHED POPULATIONS

TARGET SCHOOL			CONTROL SCHOOL		
SELF-ASSESSMENT QUESTIONS					
7th Grade	TOTAL AVERAGE LOSS OR GAIN	+19%	7th Grade	TOTAL AVERAGE LOSS OR GAIN	+23%
8th Grade	TOTAL AVERAGE LOSS OR GAIN	+19%	8th Grade	TOTAL AVERAGE LOSS OR GAIN	-6%
9th Grade	TOTAL AVERAGE LOSS OR GAIN	+26%	9th Grade	TOTAL AVERAGE LOSS OR GAIN	+14%
OCCUPATIONAL INFORMATION QUESTIONS					
7th Grade	TOTAL AVERAGE LOSS OR GAIN	+17%	7th Grade	TOTAL AVERAGE LOSS OR GAIN	-8%
8th Grade	TOTAL AVERAGE LOSS OR GAIN	+17%	8th Grade	TOTAL AVERAGE LOSS OR GAIN	+3%
9th Grade	TOTAL AVERAGE LOSS OR GAIN	+21%	9th Grade	TOTAL AVERAGE LOSS OR GAIN	+16%
SCHOOL/COLLEGE INFORMATION					
7th Grade	TOTAL AVERAGE LOSS OR GAIN	+15%	7th Grade	TOTAL AVERAGE LOSS OR GAIN	+2%
8th Grade	TOTAL AVERAGE LOSS OR GAIN	+16%	8th Grade	TOTAL AVERAGE LOSS OR GAIN	+2%
9th Grade	TOTAL AVERAGE LOSS OR GAIN	+37%	9th Grade	TOTAL AVERAGE LOSS OR GAIN	+17%

Behavioral Research Associates prepared the evaluation report of the Cochise County Career Education Project (1975). Chart 4 presents the results of the evaluation showing significant differences on all variables between a high exposure to career education sample and a low exposure sample. Cochise County also includes an evaluation of self awareness. Self awareness is measured by the student's responses to four questions. One question covers self expectations for school performance. Another question asks the students to compare themselves with other students in terms of how right they are. The remaining two questions deal with the student's certainty of attaining educational and occupational aspirations. The results indicate that students in the high exposure sample were consistently more positive in terms of self awareness than the students in the low exposure sample as measured by the four questions.

Chart 4

COMPARISONS OF STUDENTS WITH HIGH AND LOW EXPOSURE TO CAREER EDUCATION ON SEVERAL DIMENSIONS RELATED TO THE ARIZONA CAREER EDUCATION MATRIX

		High Exposure Sample	Low Exposure Sample	t-test	Significance
	Secondary Students				
	Educational Awareness	46.8	44.3	3.01	0.001
Career Awareness	Knowledge of Skill Req.	54.5	49.6	2.40	0.01
	Knowledge of Factors Contributing to Job Satisfaction	63.8	55.7	3.40	0.001
	Common Threads in Jobs	68.2	57.0	4.64	0.001
Economic Awareness	Economic Awareness	53.1	48.5	1.83	0.04
	Awareness of Career Mobility	40.9	34.0	2.78	0.003
	Awareness of Factors Influencing Occup. Structure	53.2	47.7	2.27	0.002
	Decision Making	35.3	30.2	2.94	0.001
	Employability Skills	26.6	24.4	3.04	0.001
	Appreciations and Attitudes	45.3	37.0	3.90	0.001
	Knowledge of Career Clusters Score	34.2	30.8	1.85	0.04
	Interest in Career Clusters Score	25.9	24.7	1.97	0.025
	Elementary/Intermediate Students				
	Educational Awareness	50.1	48.5	1.86	0.05
Career Awareness	Knowledge of Skill Req.	59.4	50.5	3.45	0.001
	Knowledge of Factors Contributing to Job Satisfaction	54.6	48.5	2.57	0.005
	Common Threads	65.7	59.8	2.12	0.01
	Economic Awareness	58.2	52.6	2.24	0.01
	Decision Making	61.5	54.7	2.67	0.005
	Appreciation and Attitudes	60.2	54.9	2.01	0.020
	Knowledge of Career Clusters Score	49.9	44.8	2.28	0.01

SUMMARY

The purpose of this paper was to review existing evaluative studies that are indicative of the efficacy of the career awareness element of career education. The studies discussed represent a sampling of the degree of success achieved by educators in implementing and evaluating career education across the nation.

The information revealed that there is general agreement with regard to definitions of what career education means. However, conceptualizations of career awareness and other elements of career education are more diverse. As more specific objectives, program implementation and evaluation are addressed less agreement and greater disparities appeared.

Most practitioners include varying aspects of psychological and economic theoretical domains in their conceptualizations of career awareness. The sociological domain is much less prominent among the studies reviewed.

It is evident that program development and implementation are well in advance of evaluation and assessment. There is a tendency to assign a low priority to evaluation and problems exist with evaluation design and measurement instruments. Several factors contribute to these difficulties. Teachers do not recognize the potential value of evaluative studies. There is considerable lack of specificity among objectives which have been identified under the career awareness concept. Measurement methodologies are varied and few standardized instruments are available. Measures for objectives in the affective domain tend to be unavailable and measures to determine the impact of one variable on another appear to be equally scarce. There is an unequal handling of the measurement of career awareness.

Although not exhaustive, the studies referenced in this paper are descriptive of the extent to which the concept of career education and, more specifically, career awareness programs are producing quantative data for evaluation purposes. Subjective evaluations of programs tend to be positive and the participants were favorably optimistic about the total effort. Analysis of the information accumulated reveals that adequate evidence is available to support the position that education programs designed to develop career awareness in students can make a difference. Based on the studies presented it can be concluded that regardless of the variety of definitions, the variety of implementation methods and the variety of evaluative techniques, career education is making statistically significant changes in student development.

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THE EFFICACY OF CAREER EDUCATION:
ACADEMIC ACHIEVEMENT

by
Rita S. Bryant

INTRODUCTION

On January 23, 1971, Commissioner of Education Sidney P. Marland, Jr. (1971), in his speech entitled "Career Education Now," delivered to the Convention of the National Association of Secondary School Principals in Houston, Texas, launched career education into the mainstream of educational thought. In the approximately five years since that time career education has progressed from a much-discussed idea to many well-developed programs have not been functioning very long, it is possible for them to have had an impression on students.

What data are there regarding the effects of career education on students' academic achievement? Is career education enabling the student to successfully meet his goals in school? Exactly what are the goals in American education? In the early nineteen hundreds, the seven cardinal principles of education espoused by the Commission for the Reorganization of Secondary Education (1918) defined the role that the school should play in the teaching of the student. Even at that time, emphasis was placed on "vocational preparation, citizenship, and the worthy use of leisure time."

A few years later, Dewey (1931) expressed the view that school subjects could be correlated with industrial education if educators gave priority to educational values rather than industrial or vocational goals. He indicated that the educational values would familiarize the learner with the social and cultural background of his vocation as well as the skills involved.

As time passed, the emphasis in education shifted from the fulfillment of societal needs to the desire to fill the needs of the student. Therefore, in the 1930's and 1940's, the experiences of the learner were stressed. Unfortunately, "experiences" is a rather broad, undefined term so that although the child was the original prime consideration, experiences were simple justified for their own sakes. There were no means to adequately measure them.

The beginnings of the space age in the 1950's, however, brought about an abrupt change in educational concern. The child was still considered important, but his needs were actually placed in a secondary position to society's needs for him. The student was saturated in the sciences, math--all the technological fields that would enable the United States to keep up with her global neighbors. There was numerous ideas, principles, and theories that the school *should* teach and which the child *should* learn, whether his personal goals included the need for that knowledge or not.

Recently the emphasis changed once more. The public is demanding that schools be accountable and that education be relevant to the student. As a result of these demands, the 1960's and 70's saw an increase in innovative teaching strategies, such as individualized and personalized instruction, computer-assisted instruction, and utilization of multimedia. Since the goal is to teach the concepts that the individual learner needs the most, it is only logical for career education to be in the forefront.

Proponents of career education stress the need to enable students to acquire the necessary academic skills and attitudes about work, leisure, and education so that they can adapt to change, can be skilled in certain career areas that best suit their abilities and interests, and can be mentally acceptant of furthering their education and retraining for jobs throughout life. Because of the rate of change in today's society, it is illogical to assume that any educational program is terminal. In order to be better prepared to cope with change, young people need not only to become cognizant of the effects of technology on people's occupations and lifestyles, but they must develop also a strong foundation in basic skills. Skills in planning, predicting, creating, and adapting will become basic skills in a school context, according to the Texas Association for Supervision and Curriculum Development Task Force in _School Curriculum Design for the 1980's_. Opportunities must be provided for students to develop attitudes that will contribute to self esteem and flexibility as well as a strong foundation in academic skills. Basic skills are essential to each individual as he or she develops for his or her respective role in society. In the Fourth Annual Gallup Poll of Public Attitudes Toward Education (1972), the number one priority among respondents was that the schools should teach students the skills of reading, writing, and arithmetic.

Gene Bottoms (1972) views as one necessary objective of an elementary career education program enhancing students' acquisition of basic academic skills. This, in his opinion, can be done by providing an alternative to the more abstract learning style which has dominated as an approach to education.

What exactly is the relationship between career education and academic skills? Of the developmental tasks (Havighurst, 1964) that the child is to learn during middle childhood and adolescence, some of the most important are the acquisition of the fundamental skills in reading, writing, and calculating, the concepts necessary for everyday living, the selection and preparation for an occupation, and intellectual skills and concepts necessary for civic competence. Those tasks listed above are quite relevant to the work of educators at the elementary and secondary levels. When educators are aware of these tasks, they are better equipped to help a student identify his purpose for being in school and to see the best times to introduce certain tasks to the growing child. Once the student begins to master these different tasks such as the use of words and knowledge of the things for which they are symbols, he is better able to differentiate and integrate the world around him. As O'Hara (1968) pointed out, the more occupational words a student knows, the more he will be able to differentiate and integrate within the occupational world. However, since people of the world outside the classroom also make great use of symbols in the auditory and visual realm, it is crucial that the student also become auditorially and visually literate. Thus, the fundamental skill of communication includes communication in all its forms--print, auditory, and visual. Communication and computational skills are identified by career education writers as the most marketable skills that the schools can help the student acquire.

In agreement, Leighbody (1968) has stressed the fact that academic learnings constitute not only the indispensable foundation for job training and job security but are, in themselves, the most salable and most enduring job skills that a worker can possess.

In order to aid the student in accomplishing the necessary developmental tasks, varying career education programs have been instituted. Some schools have implemented separate courses at the secondary school level while others have organized units of work around the fifteen occupational clusters. The approach utilized by a large number of schools currently is that of the infusion of career education concepts into the ongoing curriculum. Infusion, according to Katz (1973) is not a fixed treatment. It is a variable responsive to individual need and uses.

Is the current emphasis on career education affecting students' success in academic areas? It is the purpose of this paper to report the findings pertinent to the effectiveness of career education efforts as reflected in the achievement of students in academic areas.

Good (1973) defined academic achievement as students' knowledge attained or skills developed in the school subjects, as designated by test scores or by marks assigned by teachers, or by both. An extensive survey was made of available studies reporting the evaluation of academic achievement of students in school-based programs, kindergarten through grade twelve, and students in school-based programs, kindergarten through grade twelve, and students in experience-based career education programs. Primary emphasis is given in this paper to studies in which experimental and quasi-experimental designs were employed and the analysis of "hard data" was reported. Since the informational needs of the local practitioners differ from those of educational planners at the state and national levels, some data which does not meet local needs but not the rigorous standards of scientific investigation are briefly reviewed.

Examination of studies relating to the effects of career education programs on academic achievement was largely restricted to those studies which included data collected between 1972 and 1975. Few of the goals and objectives given for the implemented programs included statements regarding students' achievement in the academic areas. Understandably, few program evaluations included data relative to such achievement.

In order to obtain the information herein reported, the following methods were utilized: three searches of the ERIC system were requested; the Washington, D.C. offices of Development Associates, Inc., National Institute of Education, Office of Career Education, and the Office of Vocational Technical Education were visited; letters were written to all participants in OE's 1974 Career Education Mini-Conferences and to all projects and individuals named by Mini-Conference respondents; materials sent in response to letters to state coordinators of Career Education; telephone calls were made to all regional offices of the U. S. Office of Education. Telephone conversations were conducted with project directors and school administrators in a number of locations throughout the nation. With two exceptions, all of the project people who were asked to supply information did so.

REVIEW OF STUDIES

During the 1974-1975 school year a main thrust of the elementary school level career education program of the Ceres, California, Unified School District (1975) was the determination of the impact of the program on academic achievement. The overall gain made by pupils in grades one through six in reading was twelve percent. In math a gain of eleven percent was indicated. Using chi-square, a comparison was made of the percentage of students scoring on or above grade level on the Cooperative Primary Text and the Comprehensive Tests of Basic Skills (grades 4-6) in May, 1973 and May, 1974.

The percentage of students scoring at or above grade level in 1973 and 1974 is shown on the following table, along with the percentage of gain.*

MATH

Grade	Percentage at or above grade level 1973	Percentage at or above grade level 1974	Percent of Gain
1	31	52	21
2	32	32	NG
3	29	46	17
4	25	29	4
5	23	32	9
6	28	34	6

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*Information given via telephone by Virginia Lish, Curriculum Specialist, Ceres

READING

Grade	Percentage at or above grade level 1973	Percentage at or above grade level 1974	Percent of Gain
1	33	52	19
2	27	34	7
3	26	30	4
4	24	35	11
5	15	35	20
6	28	36	8

The foregoing information was gathered during the third year of a three-year project designated CERES (Career Education Responsive to Every Student). Approximately two thousand elementary students were included in a general impact program, with about forty percent of the students participating in a concentrated career education program. Teachers of children in the experimental group were involved in a staff development program during which they analyzed career education objectives as well as the reading and math needs of students in their classrooms. The teachers, who also learned to utilize an infused approach to curriculum development, had consultant help available from elementary principals, resource teachers, and a curriculum specialist.

David Huffman (1975) of Pittsburg, Kansas, sent a letter along with the report of a project being conducted under Part D of Public Law 90-576. Mr. Huffman wrote: "It was interesting for us to note that all those activities we have involved teachers and students in during this school year (by activities we mean those experiences we call part of our career education emphasis) did not take away from academic achievement, but in fact, achievement gains were significant." In the project schools an analysis was made of students' scores on Metropolitan Achievement Tests which were given in September, 1974, and April, 1975. A distribution of frequency for both pretest and posttest scores of 233 third-grade students was compiled, and this was tested for significant differences using a chi-square procedure. Statistically, the difference in frequency between the pretest and posttest was significant at the .001 level ($p < .001$) on all nine tests. The third grade of a parochial school which did not have career education was used as a control group. It was concluded that there was no statistical significance between the scores of the two groups; the academic achievement of third graders in Unified School District No. 250 (Kansas) was equal to that achieved by students in the parochial schools of the community.

The pretest and posttest scores of 261 sixth graders were compared in a manner similar to that used with the third-grade scores. In the test for language the distribution of scores was not statistically significant, but it is noteworthy that the group mean was 6.2 (grade equivalent) in September and 6.7 in April. In nine other subtests the differences between pretest and posttest scores were statistically significant at the .05 or higher level of confidence. Six of the tests were significant at the .001 level ($p < .001$). It was concluded that there were no statistically significant differences between the academic achievement of the experimental and control groups. The overall academic achievement of sixth graders in the experimental group was comparable with that of students in the control group.

Of thirty possible comparisons, on the Self Observation Scales, the sixth graders in the experimental group exceeded the national average percentile of 50 in 24 of the 30 situations. They also exceeded the Average Percentile Score of the control group in 28 of the 30 comparisons on the scales.

Ninth-grade students in the career mathematics classes were given the ABLE test, forms A and B, as pretests and posttests to determine their achievement in mathematics skills. The instrument used is a standardized test covering thirty areas of mathematics.

A frequency distribution was compiled for four groups totaling fifty-four students for the pretest and posttest. The difference between the pretest and posttest distribution of scores was significant at the .001 level ($p < .001$) of confidence.

In Prince George's County, Maryland (1975), a study was conducted to determine the effects of integration of career education into the existing instructional program of selected schools. A primary focus was upon the effects which the career education program had in the area of basic educational skills.

The school staff in each participating school determined the method of implementation of the career education program. Classroom guidance, workshops, and limited financial assistance were provided by the school system to facilitate the integration of career knowledge, job attitudes, community /parent visitation program into the curricula.

Classes of grades 1, 3, 6, 7, 9, 11, and 12 of fourteen schools were selected for study. Schools which were used as controls were matched with the experimental schools on five variables. Individual classes were combined across schools within grade levels to form experimental and control groups.

Thirteen data-gathering techniques were utilized in addition to the Iowa Tests of Basic Skills and the Iowa Tests of Educational Development. Posttests were given during the last school month of the 1973-1974 school year. The primary analysis techniques were the one-way analysis of variance and two sample tests.

The experimental samples scored significantly higher ($p < .01$) in reading and arithmetic than the controls. Exceptions were sixth-grade reading and senior high language usage and social studies. The writers recommended that follow-up evaluations include a pretest-posttest design in order to assure that equivalent groups are used and that differences found on the posttest can be tied better to the effects of career education.

The comprehensive career education model implemented in the schools of Lincoln County, West Virginia, is described in a monograph by Olson (1974). The three-year program was initiated in eight elementary schools, grades one through six in 1971. Of the student population, 887 students were involved in the career education program and 1,549 were not.

Staff development activities were provided for twenty-nine faculty members who subsequently implemented career education in their classes. Teaching strategies of field trips, resource role models, manipulative activities, simulation, and multimedia activities were incorporated into instructional resource units utilized with the experimental groups.

Posttest data were analyzed for 415 students who, in May, 1972, were given the California Language Achievement Test and the California Mathematics Achievement Test. The experimental students were randomly selected from intact classes of students involved in the Career Awareness Program while the control students were selected from the remaining students who had not participated in the Career Awareness Program.

In order to provide for an unbiased comparison of the effects of the treatment, the analysis of covariance was employed. The adjusted posttest means for the experimental group were 11 percent higher than the adjusted posttest means for the control group on language achievement.

Data produced from the analysis of covariance on mathematics achievement indicate that the difference between the experimental group and the control group was significant at the .01 level ($p < .01$). The adjusted posttest means for the experimental group were 24.5 percent higher than the adjusted posttest means for the control group on mathematics achievement.

Among the implications based on the finding of the study were:

> (1) "utilizing experimental activity to illustrate abstract symbols and concepts related to career education goals (life goals and academic subject goals) is an effective method of increasing academic achievement, and (2) in-service education which focuses on both process (human relations) and task (planning, development, implementation) components is effective in delivering career education activities to elementary and secondary students." (Olson, p. 21)

An exemplary project in career education began in July, 1974, in the Union County Schools of North Carolina (1975). According to a publication supplied by Dr. John Moore, the project was funded under Part D, Public Law 90-576, and was aimed at implementing a career-based curriculum. During the 1974-75 school year, twenty elementary, middle, and secondary schools were involved.

Major program activities during the first year included staff development for personnel at all levels, K-12, development and implementation of curriculum units stressing integration of career education into the academic disciplines, provision of group guidance and the establishment of a career center in the library.

Use of the community as a classroom was stressed for all grade levels of the participating schools. At the elementary school level, the academic instruction was to be related more closely to the "World of Careers" through a Career and Self-Awareness Program. In the middle schools, a Career Exploratory Program included a "hands-on" approach in fifteen occupational clusters, a Guidance and Counseling Program, and Instructional Modules which related to students' academic and career-exploratory experiences.

The research question posed, which is pertinent to this paper, was: Have student grades, attendance, achievement, and attitudes improved as a result of the Career Based Curriculum? A pretest-posttest design was not possible; data were collected in the spring only. Reading and mathematics achievement test results from September, 1974, and March, 1975, were available and were utilized. Scores were expressed in grade equivalents.

From a student population for grades K-8 of approximately 3,000, students in grades 3, 6, and 7 were randomly selected. From schools identified as having students comparable to those in the project schools, sixty third graders and sixty sixth graders were randomly selected. Twenty-five seventh graders were chosen from the two control schools.

One-way analysis of variance and multiple regression were applied to the data. Mean grade equivalents were the same for all groups in September for reading and mathematics. Although the third-grade project group achieved slightly more than the control group in both reading and math, the differences were not statistically significant. At the sixth-grade level, the difference between the two groups in reading was statistically significant, with the difference favoring the experimental group. Although the difference between the two sixth-grade groups in mathematics was not statistically significant, the experimental group showed a greater gain.

A descriptive evaluation was given by Lapinski (1972) of an interdisciplinary career assessment program for fifty-four slow learners and disadvantaged youth at the high school level in Stamford, Connecticut. The cluster concept and correlation of classroom materials to occupational assessment and skill training were essential to the program. One objective of the program was the development of basic skills; in one part of the evaluation, the Science Research Associates' Basic Skills in Arithmetic Test were used as pretests and posttests.

The sixty-four students in the study showed an average gain of 1.7 years at the ninth-grade level and 1.3 years at the tenth-grade level. The ninth-grade gains ranged from 1.0 to 3.7 years; the tenth-grade gains from 0.0 up to 2.8 years. At the conclusion of the study, the arithmetic scores of the group of slow learners and disadvantaged students ranged from 5.6 to 10.5 for ninth graders and 4.6 to 9.9 for tenth graders.

The study which is descriptive in nature cannot provide a basis for comparison of results such as can be provided by a control group. The researcher did report that a check of five students who were in the program the previous year and who were re-tested a year later indicated that the students maintained and improved their grade-level scores.

In a study conducted by Solomon (1973) a local career education program was evaluated to measure the effect of the program on academic achievement and career development. Forty fifth-and sixth-grade experimental group students were compared with forty fifth-and sixth-grade matched controls from another school. The Mathematics and Reading tests of the Metropolitian Achievement Tests were two of the posttests administered. No significant differences were obtained on any measure, indicating that occupational and self-awareness did not impede growth in scholastic areas.

In a study involving 348 elementary students in North Central Texas, Bryant (1975) found that academic achievement was increased through the implementation of career education program. Randomly-selected schools in a ten-county area participated in the study which was part of a larger dissemination effort jointly sponsored by Education Service Center Region XI and Partners in Career Education. Seventeen fifth-grade classes in five school systems participated. Within the three larger school systems, both experimental and control classes were identified. Classes in the two smaller school systems were matched with control classes in other school districts.

Teachers in the experimental group participated in three days of staff development and were given teacher-developed career-education curriculum guides for use in planning instruction in language arts and social studies classes. Consultant help was provided teachers on a request basis.

Forms Q and R of the Comprehensive Tests of Basic Skills were administered as pretests and posttests in October and February of the 1974-75 school year. Adjusted means were used in the analysis of the data; analysis of covariance was the basic statistical procedure employed. Statistically significant differences between the two groups were found to exist on the scores of the total achievement battery ($p < .001$), Reading Test ($p < .01$), Language Test ($p < .00$), and Study Skills Test ($p < .01$). Differences that were statistically significant at the .001 level ($p < .001$) were indicated in the Vocabulary, Language Expression, and Reference Skills subtests. All differences favored the experimental group.

Career-education concepts were not introduced into the arithmetic curriculum, and no greater gain was made in arithmetic by the experimental group than was made by the control group. The findings supported the conclusion that the infusion of career-education concepts into the ongoing program of curricular offerings can have a positive effect upon the cognitive growth of students as evidenced by achievement test scores.

A three-year occupational information project for grades 1-12 was implemented in the schools of Henderson County, Kentucky. The Comprehensive Test of Basic Skills was used along with the Barclay Classroom Climate Inventory and other instruments to assess the value of the program. No negative effects on students' scholastic growth was reported. It was concluded by the researchers that the school had changed from a traditional subject matter orientation to a more life-centered one.

In a manuscript entitled, "Evaluation of Career Education: Implications for Instruction at the Elementary School Level," Hoyt (1975) referred to results reported by Clifton Purcell of the Santa Barbara, California, career education program in 1974. The Cooperative Primary Reading Test was administered to second grade students in a class in which career education approaches were emphasized and in a class not involved in such an approach. The scores for the students in the career-education-oriented class were significantly higher, statistically, than the scores of the other students tested. Mr. Purcell is no longer with the school district and a copy of the study was not made available.

Director James Spengler of the Board of Cooperative Education Services (BOCES, District One, New York) (1975) provided information regarding the preparation and field testing of curriculum materials designed to infuse the career education concept into the normal academic curriculum. The development of the Career Education Instructional System is part of the effort of the New York State Consortium for Career Education.

The first year of the project was one of planning and development during which twenty-one school districts in Erie BOCES #1 and #2 participated. One hundred teachers, counselors, administrators and media specialists were oriented and trained to prepare curriculum packages in language arts, math, science and social science at all grade levels. Fifty-two Learning Activity packets, including 900 Learning Activity sheets were prepared, evaluated by experts, revised and printed.

Following summer orientation, three hundred teachers used the packets in their classrooms. Teachers' evaluation indicated high student interest during activities in which the infusion technique was used. An examination of pre- and post-achievement testing indicated slight gains in the twenty-eight test cells (grade level--subject) for which data were obtained. Two cases were statistically significant in achievement gains during the first year of field testing.

During the 1974-75 school year, the reported high interest of students using the packets was verified by independent survey of students. Examination of pre-and post-assessment indicated increases in achievement again in all but five of the sixty-four test cells. In sixteen cases the gains, experimental over control, were statistically significant. Improvements were shown in cells representing 223 students in fifty-nine classes, or twenty-six of the classes.

Included in a career education program in Elhart, Indiana were eighth and ninth-grade students in an inner-city school. Objectives were to enable the students to increase their reading and comprehension levels and to increase their career options. Participants in the program were functioning at reading levels four or more years below their grade level. Directed activities utilizing workbooks were provided the student for one period per day. Fourteen learning excursions into the community were made by the group during the year.

Scores of students indicated growth gains in language and reading skills that ranged from .6 to 3.3 years. The average gain was 1.5 years.

The three-year developmental career education program in Cobb County, Georgia, was reported by Smith (1973). The project's efforts produced a broad-based, developmental, sequential curriculum within elementary, middle and secondary schools. The project by design and by nature placed special emphasis on those students who were culturally, economically or otherwise handicapped or disadvantaged.

An objective of the program was to integrate a career development program into existing curriculum to enhance traditional academic learning. A product objective to increase student academic achievement as measured by achievement tests was partially attained. The evaluation was based upon results of the regular school administration of Iowa Tests of Basic Skills to third-, fourth-, and sixth-grade students in September, 1972. At the third-grade level, the average grade equivalent score for experimental and control students was 3.35 (comparison made to grade equivalent of 3.1).

The fourth-grade students were tested in October, 1972, and the expected grade equivalent score was 4.2. The overall mean score for the project schools was 4.15; the average score in the control schools was 3.95.

The overall grade equivalent scores of sixth-grade students in the project schools exceeded the expected grade equivalent score by .2 while the score in the control schools was .2 less than the expected grade equivalent. The overall means for the project schools were equal to or higher than the overall means of the control schools at each of the three grade levels tested.

One of the goals of the Cobb County program was to create opportunities for the student to utilize the subject matter in manipulative learning situations. Another goal was to provide opportunities for the student to observe the practical application of academic subject matter in the work community.

From a first-year project involving twenty-four teachers in four elementary schools, the program was expanded to include forty-eight teachers the second year. In a "teacher-helping-teachers" approach, thirty-four Cobb County schools were eventually included by the third year.

This project demonstrated the feasibility of a transportable career education program that involved little expense and was maintained as an integral part of the educational experiences of all pupils at no extra cost. One evaluation that was meaningful to the local planners was the fact that the school board voted for expansion of the program to all schools.

Math sections of pretests and posttests administered to selected third-and fourth-grade students in Calhoun County, Michigan, (Simpson, 1974) incorporated various math functions such as multiplication, addition (shaded figures), angles, fractions, points and lines, notations, and division. Both the experimental and the control groups showed little or no change on the multiplication section, which apparently was too difficult. For the remainder of the items in the math section of the test, the two groups scored about the same, supporting the hypothesis that academic competence (as measured by a math test) would not be impeded as a result of the implemented career education program.

Following the rationale that career education is for everyone, different schools have provided programs for slow learners, potential dropouts, disadvantaged students, and accelerated learners. In the McKeesport Area School District of Pennsylvania, (1974) pretests and posttests were administered to elementary students in the academically talented program. Of the eighteen units attempted, fifteen showed statistically significant student improvement between pretests and posttests. "Several of the improvement rates were quite startling with a 1706 percent improvement being observed in the Minerals and Gems unit and 1250 percent growth noted in the Forestry unit."

(McKeesport, p. 26). The program for the academically talented was highly successful.

Selected elementary students in regular classes in the McKeesport District were also tested in regard to eleven career education units. Those children engaged in Anthropology, Senses and Agriculture units showed statistically significant improvement. The other units, while failing to reach the statistically significant level, showed general improvement.

In Philadelphia a prototype experienced-based career education program has been developed, operationalized and tested by Research for Better Schools, Inc. The four years of the career education program have encompassed one year at the planning stage and three additional years at the operational stage. According to Kershner and Blair (1975) the evaluation activities during the first year of operations were largely formative in nature. Data were collected on the extent of implementation, perceptions of participants, and student progress on several criterion measures. No comparison groups were available to establish external standards or determine effects of the program.

During the 1973-1974 school year, 250 students were released by the School District of Philadelphia to participate in the program. The report of the interval evaluation staff focused on the 38 first-year students who completed all of the testing. Data given for another group of 54 students is not reviewed here because no comparison group was available.

The Experienced-Based Career program included three types of instructional activities. First, students spent at least one day a week engaging in wide variety of "hands-on" activities conducted at the work sites of over eighty participating industries, businesses agencies and unions. Second, structured small group guidance sessions were held each week in addition to individual counseling that was provided. For an hour and a half each day students were given individualized learning opportunities in communication skills and mathematics. A teacher-student ratio of 18.44 to 1 was reported.

All students were administered a pretest-posttest series of instruments which included the Comprehensive Tests of Basic Skills. Levels and Forms of the tests used were not specified in the material reviewed. Hypothesized growth within groups was tested through the use of correlated t-tests. In all studies reported herein except those relating to evaluation of Experience-Based Career Education projects, a .05 of .01 level was established as a level of significance.

All of the tests run on the experimental group demonstrated a statistically significant ($p < .10$) growth in reading and math. In addition to a total reading and arithmetic scores, scores were obtained on vocabulary, comprehension, computation concepts, and applications.

Analysis of covariance revealed no statistically significant differences between the gains of the experimental comparison students except for a difference, favoring the experimental group, in Arithmetic Application.

Highly positive attitudes toward the program were reflected by students, parents and employers. The experimental students gained significantly in career maturity and attitude toward school.

Indications were that useful data should result from the evaluation of the 1974-1975 program because a true experimental design was implemented and, for the first time, students were randomly assigned to treatment and non-treatment groups. Data were not available in early October, 1975.

Northwest Regional Educational Laboratory made an evaluation of students in another Experience-Based Career Education program. Using the subtests of the Comprehensive Test of Basic Skills, as pretests and posttests, evaluation was made in the areas of reading and math. A statistically significant gain in reading was shown by students in the experimental group; the gain was not statistically different from that shown by the comparison group. On a newspaper-reading exercise designed to assess the applied reading skills of a sample of students, statistically significant growth over the year was demonstrated.

Individual study, individual tutoring, and application of skills in practical situations were all employed to help students increase their ability in mathematics. Scores on the math subtest of the CTBS showed that students in the experimental group made a statistically significant increase in their scores in this area. EBCE students on the average increased their grade equivalent scores .7 years. This compares to a decrease of .1 grade equivalent shown by the comparison group.

Through the administration of the Iowa Tests of Educational Development on a pretest-posttest basis the Far West Laboratory sought to determine the effects of an Experience-Based Career Education program on thirty-six students at the tenth-, eleventh, and twelfth-grade levels. The tests were given to students in the experimental and to control groups and comparison groups from the Oakland Public Schools during November and May of the 1973-1974 school year. Grade-score equivalents were used in the analysis of the data.

Analysis of covariance of the math and reading scores for the two groups indicated that, even though the experimental group had a greater average change on the math test than did the control group, the difference was not significant. On the reading test, the regressions of the May scores on the November scores were significantly different at the .10 level. Thus, there was no accurate test of the significance of the difference in means.

A positive change in writing skills was observed by more students in the experimental group (38%) than in the control group (14%). Writing samples were collected from the experimental group at the beginning; samples were not available from a control group. Writings of the Far West School students were collected at the end of the school year and judged with respect to three characteristics: mechanics of writing, effectiveness of communication, and maturity or logical thoughtfulness. Four experienced test readers refined the draft definitions of each of the three characteristics and described a five-point scale in each area. For purposes of estimating the reliability of the ratings assigned for a given characteristic, there were eight ratings for a particular student (four raters for pretest scores and four for posttest scores). This yielded six interrated correlation co-efficients for the pretest and six for the posttest. The Spearman-Brown Prophecy Formula was applied to the median correlation co-efficients. The estimated reader reliability of the average ratings for each student on the Mechanics and Effectiveness scores were quite high. The reliability of the Thoughtfulness score was not high, but the score was used because no data were available for a better measure on the important characteristic.

The distribution of the differences in individual scores on the pretests and posttests showed that the percent of students whose written communication scores increased by more than one standard error of the difference was much higher than would be expected (16%) if there had been no increase for the group as a whole. Approximately 55% of the students showed a significant increase in Mechanics and Effectiveness, and none of them showed a significant loss in these skills. Two students showed a significant loss in Thoughtfulness and 41% showed a significant increase.

In summary, a large proportion of Far West School students showed increases in their writing skills that were both statistically and educationally significant. This was the only study reviewed that included an evaluation of students' compositions.

In a final evaluation report on Experience-Based Career Education, Appalachia Educational Laboratory reported that the ninety-two EBCE students did as well as the comparison groups on scholastic growth. Data sources included the subscores on Educational Development Series (EDS) and Iowa Test of Educational Development (ITED). All of the students were given EDS during the fall of their eleventh-grade year and the complete battery of the ITED upon entry into the EBCE program and again in April. Comparison groups were not given the ITED.

A multivariate analysis of variance was used to compare the EDS pretest mean scores on the six subtests over the three groups of students (EBCE, Coop and randomly chosen). The resulting F value was found to be significant at the .05 level ($p < .05$).

A visit to the offices of Development Associates and perusal of An Evaluation of Vocational Exemplary Projects did not produce data pertinent to the specifications of this paper. The evaluation report did contain the evaluators' commendations of the United States Office of Education and especially the program staff of the Department of Vocational Technical Education for actions taken to improve both the content and the management of federally-funded programs. Some of the evaluations reviewed in this paper are of programs conducted during the 1973-1975 school years under the revised management procedures.

CONCLUDING STATEMENTS

In his analysis of the lifelong process of vocational development, Havighurst (1964) has identified the second stage as "Acquiring the Basic Habits of Industry." Learning to organize one's time and energy to get a piece of work done (school work, chores) and learning to put work ahead of play in appropriate situations are aspects of the stage. Assuming that good work habits are possibly correlated with academic success in today's schools, attention is called to data produced in the McKeesport, Pennsylvania Schools.

An indicator of student success in the career education program there was the shift in type of student activity. Time devoted to planning activities increased 14% ($p < .05$) and 16% ($p < .01$) more time was spent by students in implementation. Although 8% more time was spent in evaluation, the increase was not significant. Statistically significant ($p < .01$) was the reduction by 38% in the amount of time spent in non-productive activities. The categorization of the students' behavior was based on Time series sampling by multiple observers not involved in the treatment. Additional emphasis upon problem-solving and critical-thinking abilities was given through the career education program.

Assessment of many programs included information concerning the improved self concept or self esteem of students. The final report of the research and development career education project in Raleigh, West Virginia (1974) cited relationships among self concept, ability and achievement. Results of the study showed that for seventy-two students at the third-grade level, self concept (as measured by the Self Observation Scales) accounted for 13.5% of the variance in predicting ability and 21.2% of the variance in predicting achievement (as measured by the Education Development Series test battery). These findings were consistent with the research data of IBEX, Inc., which indicates that self concept is a major contributor to achievement and is a construct distinct from ability (Klaus, 1974).

Seventy-seven percent (77%) of the teachers in the Sacramento Unified School District indicated that career education greatly increased pupil motivation for class work. Sixty-three percent (63%) said that pupils were more interested in school projects as a result of career education. Similar support was given by teachers in Richmond, California, as well as in many other locations.

If students have good feelings about themselves and positive relationships with others, school achievement may increase. Hoyt (1975) points out that positive relationships have been established between productivity and reduction of worker alienation. He maintains that educational productivity--increases in academic achievement--should result if worker alienation is reduced among students and teachers. Many of the techniques and strategies of implementing career education programs are aimed at reducing worker alienation among students and teachers.

Evaluations of a number of school-based career education programs reflect satisfaction of students, parents, educators, and other community members with the goals, activities and results of the implemented programs. Continued support of the exemplary projects, expansion of pilot-school programs to encompass entire school systems or countrywide units, and records of community involvement are described in reports. These "soft data" and numerous other supporting materials appear to reflect the information needs of many educators at the local level. Reading the wording of program goals and objectives, one might infer that local planners concurred on a basic assumption that academic achievement would not be impeded by making the curriculum more relevant to the world of work and emphasizing the career development and guidance of children and youth.

Communication of goals and objectives or programs to educators at various levels is essential to evaluation. The Union County, North Carolina (1975) study included a recommendation that teachers be encouraged to devise activities with specific objectives in mind for their instructional units and lesson plans. The failure of the middle school students to outscore the control students "indicates that the objectives as understood by the evaluators are not consistent with those of the lab teachers."

Parties involved in programs do not always communicate among themselves their separate criteria for acceptable evaluative data. Different levels of evidence of the efficacy of career education are acceptable to people functioning in various educational roles. Information considered to be most useful is not always that which is rigorously obtained. Support to the two foregoing statements is given by examination of the variety of materials sent in response to requests for hard data to be reviewed for this paper. The materials are listed in the bibliography.

Commissioner Bell (1974) has stressed the importance of maintaining the grass-roots-level initiative for career education. An aid in balancing federal and local support may be the development of innovative evaluative procedures that can result in assessment information needed at state and national levels as well as in data that is useful at the local level.

Although this paper does not represent an exhaustive review of evaluations conducted, it does, to the greatest extent possible, contain reviews of studies currently available. Indications are that the evaluations of many 1975-1976 programs may contribute substantially to the knowledge now available concerning the interrelationship of career education and academic achievement. Soft data have indicated that positive changes in the self concepts and work habits of some students have taken place. Follow-up studies, indeed, may net more hard data that career education can aid the development of students' acquisition of the fundamental skills--reading, writing, and arithmetic.

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THE EFFICACY OF CAREER EDUCATION:

CAREER DECISION-MAKING

by
Michael J. Masucci

Introduction

The purpose of the paper was to examine and report attempts to evaluate pupil behavior sought by career education efforts in career-making. In so far as was possible, the paper concentrated attention at programs designed to operate at the secondary school level. The paper was further delimited by a Statement of Work issued by the Office of Career Education. The statement included 1. review literature which is available within the Office of Career Education and other career education agencies, 2. gather input from State Co-ordinators of career education in the 50 states and from local practitioners of career education, 3. emphasize, to the greatest extent possible, that the data reported represent application of a particular and well defined treatment.

In addition, other concerns resulted from various discussions within the Office of Career Education, the National Institute for Education and some of the career education program funding agencies. These concerns were focused on the need for discussion concerning the nature of career decision-making, the difficulties connected with its assessment and the process of determining outcome data which would suffice as evidence of career decision-making "effects".

Framework for Career Education

Kenneth Hoyt (1974) offers the following framework for career education:

> As a process, career education follows the model of career development. This model envisions a sequence in-

> volving, in a progressive manner, (a) career awareness; (b) career exploration; (c) career motivation; (d) career decision-making; (e) career preparation; (f) career entry; and (g) career maintenance and progression.

Further on in the same paper, he describes career decision-making as follows:

> Career decision-making seeks to help the individual answer three questions: (a) what is important to me; (b) what is possible for me; (c) what is probable for me?

Wise, Charner and Randour (1975) have identified two processes in career decision-making.

> Identifying opportunity: the process of perceiving and structuring career options.
>
> Assessing opportunity: the process of identifying the benefits and costs associated with each in a set of options.

They further state

> These two decision-making processes can be activated at any point in an individual's career and as society becomes more complex and as the market place creates new occupations and discards old ones, situations of choice will appear more frequently.

These statements do not contradict the previous remarks by Kenneth Hoyt, but do encourage speculation that career decision-making may not be a progressive stage, but rather a recurring event. The remarks also allude to a model of career education that will become progressively more open ended as societal complexity increases.

For discussion purposes, it is possible to consider career decision-making as a process of identifying or assessing opportunity and as actual choices such as 1. entering a specific job or career, 2. increasing one's level of aspiration, and 3. choosing a specific occupational or educational preparation program. These certainly do not exhaust the possibilities, but should provide a sense of the direction of the search encompassing this paper. It is these and similar events that were sought for in the materials examined.

Theoretical Assumptions

It was obvious, during the examination of materials, that theoretical bases for the various programs and projects differed significantly. It became increasingly apparent that it would be difficult to assess the programs from a single or unifying point of view since the very nature of these programs included the regional differences and specific approaches intended to solve a variety of highly localized problems and issues. None the less, some discussion of the theoretical basis for career decision-making is in order.

Waldemar Unruh (1974) describes a study of career decision-making conducted by the American Institutes for Research which was sponsored by the National Institute for Education. Included in this comprehensive treatment on decision-making are a Social Learning Theory of Career Decision-Making by John Krumboltz; an analysis of related literature by Anita Mitchell and a somewhat comprehensive discussion of program interventions. Also included in the document are extensive lists of reference materials and recommendations for directions in theory development as well as program development.

The following propositions were cited in a chapter entitled "A Social Learning Theory of CDM" by John Krumboltz which was included in the same report:

Under positive influences. (on CDM)

IA1. An individual is more likely to express a prefer-

> ence for a course of study, an occupation, or the tasks and consequences of a field of work if that individual has been positively reinforced for engaging in activities she/he has learned are associated with the successful performance of that course, occupation or field of work.
>
> IA2. An individual is more likely to express a preference for a course of study, an occupation, or the tasks and consequences of a field of work if that individual has observed a valued model being reinforced for engaging in activities she/he has learned are associated with the successful performance of that course, occupation or field of work.
>
> IA3. An individual is more likely to express a preference for a course of study, an occupation, or the tasks and consequences of a field of work if that individual has been consistently positively reinforced by a valued person who models and/or advocates engaging in that course, occupation or field of work.
>
> IA4. An individual is more likely to express a preference in a course of study, an occupation, or the tasks and consequences in a field of work if that individual has been exposed to positive words and images associated with that course, occupation or field of work.

Under negative influences, four propositions yielding negative results are indicated

> IB1. . . . if that individual has been punished or not reinforced, etc.
>
> IB2. . . . if that individual has observed a model receive punishment or little or no reward, etc.
>
> IB3. . . . if that individual has been consistently positively reinforced by a valued person who expresses negative opinions about the activities of persons, etc.
>
> IB4. . . . if that individual has been exposed to negative words and images associated with that course, occupation or field of work.

Similar propositions were formulated regarding CDM Skills and Entry Behaviors into Educational or Occupational Alternatives.

In a subsequent chapter, Anita Mitchell analyzed and synthesized CDM literature as related to the theory and since the findings were documented in her chapter, the following list represents some of the findings in her review.

> More college students raised than lowered their degree of aspirations in junior college.
>
> Large percentages of students changed goals while in college.
>
> Project TALENT data indicate that there was little stability of choice during five years after college.
>
> Project TALENT data from 1960-70 showed an increase in realism of career choices of high school boys.
>
> Amount of formal training in an area positively affected the amount of information acquired in the area.
>
> Most differences found in patterns of information reflected differences in interests.
>
> Students expressed need for help in career decisions.

Some other findings in support of specific propositions follow:

> Favorite teachers appeared to influence choice of major except for Physical Education.
>
> More women preparing for non-traditional than for traditional careers stated that significant men in their lives believed women could perform in these areas without jeopardizing marriage or family.
>
> Students tended to increase their educational expectations by a fraction of a year as a result of counseling. Parental encouragement was also a factor.

Numerous other findings in support of the propositions were cited suggesting the viability of the theoretical approach as a potential experimental influence in CDM program development and research. The more obvious and present value is that these chapters helped provide a perspective for examining the project materials.

Materials Collection

As previously stated, the statement of work (Appendix A) dictated the procedures to be followed, and after an initial search in the Office of Career Education and the National Institute for Education, a letter (Appendix B) requesting relevant information was mailed to the fifty state co-ordinators of career education. Over thirty state co-ordinators responded yielding approximately two hundred names and addresses of project directors of career education programs. Those states that did not respond were followed up with a second mailing of the initial request yielding several more responses.

The next step was to send a letter (Appendix C) to project co-ordinators requesting specific data related to the scope of work and the purpose of the paper. These letters yielded information concerning approximately 120 career education projects; several letters contending their programs were not designed to yield data such as requested. Still another handful of letters indicated the discontinuity of funding and, therefore, no staff existed to assist in the study.

The next step in the process was to generate an ERIC computer search on career decision-making literature (1975) in the event empirical studies had been conducted which might be linked to the project materials received from the project directors. This step, though highly informative and educational, was of no real value given the stated expectations in the scope of work. The significant assistance was from the NIE paper prepared by the AIR as previously mentioned.

As previously stated, each project co-ordinator (over two hundred) designated by the State Co-ordinators of Career Education was asked to respond to specific inquiries concerning career decision-making. (see

Appendix C). Less than one-third (approximately seventy) responded at all. Of those who did, none responded in a very specific way. More likely, they submitted the original program contract, a description of the project and a copy of the general program evaluation report (if one existed). Thus, the potential for reviewing a large sample of project events diminished at a high rate. Some other factors that significantly reduced the number of reportable events are considered below.

Many of the projects examined had stated specific program goals related to career decision-making at the elementary and middle school level, but since the scope of work called for secondary school projects, those projects were not included in this report.

Several other programs had specific career decision-making objectives and were primarily intended for secondary students, but either the treatment was so general that effects could not be traced to the program, or, the evaluation was not conducted, was incomplete, was in future plans. Therefore, those studies were not reviewed in this study.

There were a few programs which intended to cover the career decision-making area in their projects at the secondary level and to examine the results in an appropriate way, but lack of time or funding prohibited their doing so. Those programs were not reviewed in this study.

Review of Materials Received

The following projects were selected for inclusion because they included 1. specific objectives in career education decision-making activities, 2. they had relatively well defined treatments to implement the objectives, 3. they used empirical methods of evaluating their results, although in some cases raw data were reported as results. (If the form of these data could be analyzed statistically, the raw data was reported and appropriately identified as such.) The remaining materials which were judged to be within the scope of work were examined and reported.

Review of Relevant Career Education Materials

Pima County, Arizona. Developmental Career Guidance Program, Career-Decision-Making.

The following information was contained in the "Summary Evaluation Report of Career Education" (1975). A career education media center was established at Apollo Junior High School. It was staffed by a career education specialist and was available to students as often as they wished to avail themselves of the service. Sixty-five percent of students in seventh, eigth and ninth grades (with heaviest users in the ninth grade) reported that the career center helped them decide on a future career. Seventy-five percent said the materials were useful concerning education requirements for various careers. In the same project, a t-test comparison of means for students having more exposure to career education with students having low exposure, yielded statistically significant differences (.001) in the high exposure group's greater ability "to recognize and demonstrate the decision-making skills associated with various occupational roles. Also, they were better able to recognize the degree of responsibility which is inherent in different jobs."

Cochise County, Arizona. Career Education Project.

The following information was reported in a document entitled "Cochise County Career Education Project" (1975) prepared by Behavioral Research Associates. A t-test comparison demonstrated that secondary students with high exposure to career education were more knowledgeable (statistically significant at .001) about decision-making skills necessary than were secondary students with low exposure to career education.

Grassmont Union High School District, La Mesa, California.

Based on a comprehensive study of objectives and implementation centers in the state of California, Thomas J. Jacobson (1975) has reported significant ratios of increase on numerous career development objectives as students increase frequency of visits to career centers. More important, his research leads to the recommendation that teaching decision-making skills become an important priority for career centers. In his study, he points up the lack of useful curriculum in the career decision-making area (and implies the lack of professional human resources in this area). These events indicate a need for funding programs to train experts in career decision-making curriculum development and specialists in the implementation of such materials.

Georgia, Crisp County Education Programs.

The following information was contained in a document entitled "Career Education Projects" edited by Frank E. Wellman (1974). The following objective was stated as part of the career education program in Crisp and Liberty Counties:

> The pupil will apply the decision-making process to a series of decisions and commitments in the development of a career plan.

Further, the process for evaluating the objective was stated as follows:

> The pupil will be able to defend his cluster selection with facts about himself, the cluster chosen, and his reason for his belief in the careers available in the cluster. The pupil will submit a plan to the teacher or counselor outlining his desired life style, and how he plans to reach this goal.

This goal was judged to have been fully achieved in the eleventh and twelfth grade in Crisp County and the twelfth grade in Liberty County, but not in the eleventh grade in Liberty County. The judgements were based on a Survey of Education and Career Plans and on the Career Maturity Inventory results.

Las Vegas, Nevada. Clark County School District.

The information reported was from a document entitled "An Objective-Based Career Guidance Program" (1975). In an objective-based career guidance program (Profile Counseling) students were given "hands on" data about themselves from a computer-based information gathering system. The profile included grades, test scores, discipline indexes, career aspirations and educational aspirations. They received help interpreting the data from counselors, teachers, peers and parents. The Class of 1975 whidh received the profiles was compared with the Class of 1974 who did not receive the profiles. T-ratios (significant at the .05 level) indicate that the Class of 1975 felt better prepared to make intelligent decisions concerning future planning.

Pleasantville, New Jersey. Career Development Program.

The following information was contained in a document entitled "Summer Coupled Work/Study Evaluation Results" (1975).

In a program entitled "Coupled Summer Work/Study," forty tenth and eleventh grade students were provided on-the-job training and work experience in various community agencies for a six-week period. These students were administered the Career Maturity Inventory in both pre and post test. The data presented demonstrates a significant improvement on all scales but the attitude scale (although statistical test of significance was not reported).

CAREER MATURITY INVENTORY
(Sub Test Scores)

	Average Percentile		Mean Percentile		Below 50th Percentile	
	Pre	Post	Pre	Post	Pre	Post
Part 1 Knowing Yourself	36	51	35	44	31	19
Part 2 Knowing About Jobs (Occupational Information)	57	71	53	82	17	9
Part 3 Choosing A Job (Goal Selection)	44	64	39	66	24	11
Part 4 Looking Ahead (Planning)	56	76	53	83	13	5
Part 5 What Should They Do? (Problem Solving)	65	77	64	80	9	2
Attitude Scale	55	50	59	42	12	20

N=40

North Central Vocational, Technical and Adult Education District,
Wausau, Wisconsin.

The following information was contained in a document entitled "Third Party Evaluation Report of Career Education for Persons in Rural Areas—Primary Focus on Adults 16 and Over," (1975).

In a career education program for persons in rural areas with a primary focus on adults 16 and over, a program was implemented that included the objective " to assist persons in self-evaluation and determination of career direction through testing, counseling and guidance . . . ." A summary of test results for the variable career planning knowledge yielded no significant difference between the treatment and control groups for grades twelve.

Summary

Most of the program materials reviewed for this study indicate a relatively informal approach to career education implementation as well as a relatively informal approach to evaluation of the programs. With this fact in mind, one can cautiously interpret the findings of the few studies cited, to indicate that it is possible to plan career education programs which include career decision-making objectives and to evaluate these in a relatively formal manner. Obviously, the great majority of programs (although most recognized the importance of career decision-making) elected to direct primary focus on awareness, achievement or other career education goals. Another important point to consider is the lack of longitudinal data to examine the nature of an evolving process of career decision-making which must be undertaken if a better understanding of decision-making is to occur.

Since the title of the paper included the word "efficacy" which means either the power to produce effect or the production of intended effects, one can generalize that career education programs have the potential power to produce career decision-making effects which are specific and desirable. It is also obvious that wide scale attempts at producing specific career decision-making "effects" has either not occurred and/or has not been reported extensively. Examination of all the material (including that which was not included in the paper) indicate that much activity in career decision-making is included in the programs. What seems to be lacking is a sound theoretical-research base for prescribing and reporting these events.

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APPENDIX A

Statement of Work

1. Contractor will meet with project officer in July, 1975, in Washington, D. C., to review literature which is available within the Office of Education and other career education agencies.

2. Contractor will gather input from State Coordinators of Career Education in the 50 States and local practitioners of career education.

3. The paper should emphasize, to the greatest extent possible, that the data reported represent application of a particular and well-defined treatment. The paper will be written with the view that the primary audience will be local career education practitioners.

4. The contractor will be required to submit an original and 25 copies of the paper to the Office of Career Education, U. S. Office of Education, no later than October 15, 1975.

APPENDIX B

TO: Each State's Co-ordinator of Career Education

FROM: Mr. John Michel, Acting Director of the National Advisory Council for Career Education.

The Council has recently contracted with four individuals to prepare a paper entitled, The Efficacy of Career Education. As a state co-ordinator of career education, you can direct these individuals to career educators in your state who have made systematic efforts to evaluate the impact of their programs. The Council is particularly interested in the evaluation methodologies and measured results of programs whose objectives invalue:

1) the development of career awareness
2) the maintenance or improvement of academic achievement
3) the development of career decision-making skills.

Other program emphases such as career exploration, career preparation and job placement are also of interest to the Council in their effort to establish the full impact of the career education programs around the United States.

In the space below, please enter the names of projects you feel should be included in the Council's study, and supply the contact information and program classification requested. Mail your list of projects in the enclosed self-addressed envelope. In order for your input to be considered in this study, it is important that your input be received no later than AUGUST 15. Thank you for your cooperation.

PROGRAM OR PROJECT TITLE AND FUNDING SOURCE	NAME, ADDRESS AND PHONE OF CONTACT PERSON	AREA(S) EMPHASIZED IN PROGRAM'S OBJECTIVES

APPENDIX C

Dear Career Education Director/Coordinator:

Your name/project was given to me by the coordinator of Career Education in your state in response to the attached letter from John Michel, of HEW. As the letter indicates, several of us have contracts to evaluate specific positions of those programs.

Since my contract area of interest is CAREER DECISION-MAKING SKILLS, I would appreciate any information you can send me which relates to Career Decision-Making Skills learned by participants in your program.

More specifically, I need (in addition to a general description of the project):

1. a description of the objectives,
2. the treatment or means by which the objectives were met,
3. the research design,
4. the method of analysis,
5. the results and evaluations related to the objectives.

If by chance, yours was not primarily a project intended to improve Career Decision-Making Skills, I will appreciate a narrative statement of program results in the area of Career Decision-Making.

Since we are operating under a tight schedule, your prompt attention will be most welcome. Thank you for your assistance.

Sincerely,

Michael J. Masucci
Chairman, Education Department
Salisbury State College
Salisbury, Maryland 21801

Enclosure
MJM:sph

THE EFFICACY OF CAREER EDUCATION:
OTHER WAYS OF ASSESSING EFFECTIVENESS

by
Cherylynn Risch Schager

THE EFFICACY OF CAREER EDUCATION:

OTHER WAYS OF ASSESSING EFFECTIVENESS

In addition to measuring students' career awareness, their academic achievement and their career decision-making skills, there are a number of other possible ways of assessing the effectiveness of career education. One such way is to examine the effects of self awareness programs which attempt to help students understand their own abilities, interests and values. The success of occupational preparation programs in teaching entry level job skills and the success of schools' job placement efforts are other ways worth investigating. Only after data pertaining to all these program components are collected and analyzed, will it be possible to pass judgment on comprehensive career education's success as a model for instructional programming.

Since 1971, the U.S. Office of Education, state boards of education and school district practitioners have worked hard to arrive at a common definition of the concept of career education. There is now considerably more understanding of and agreement about what that concept is. There is also beginning to be more agreement about what comprehensive career education is _in actual practice_. The terms, career awareness, career exploration, career decision-making and the other career development components have come to represent fairly uniform sets of activities to the career educator, regardless of his location. What still is unclear, however, is what constitutes an _effective_ or a _successful_ career education effort.

What evidence an educator produces to attest to the success of a given educational program is generally a good indicator of the real goals s/he wanted to accomplish, regardless of what the written goals and objectives were that appear on the program's dissemination materials. In career education to date, there seem to be at least two sets of goals, those which describe anticipated student outcomes (products) and those which describe proposed program activities (processes). Current evaluation theory defines goals and objectives as standards for measuring the effectiveness of a given program effort. Applying this definition to career education, the implication is that there are two ways to judge the efficacy of career education: (1) "Program XYZ will be considered a success if participating students demonstrate behaviors A, B and C," and (2) "Program XYZ will be considered successful if teachers, administrators and program staff do tasks A, B and C." These two sets of standards are not in any way contradictory, but their simultaneous existence raises the question as to which set currently has priority in the minds of career education practitioners.

Those career educators who produce evidence of their programs' positive effects on student attitudes, skills and knowledge appear to be classifying career education as an innovation in instructional programming. Those who point to changes in teachers' and administrators' attitudes toward career education and who call attention to the level of activity generated by their efforts seem to be placing it in the category of an educational reform movement. This dual image considerably complicates any study of the efficacy of career education by creating two competing definitions of what constitutes its success.

While the major portion of this report concerns career education's efficacy as an innovation in instructional programming, it would not be complete or thorough without taking into consideration the success of career education as a reform movement. This chapter will therefore examine not only the other ways career education's effectiveness as an instructional effort has been measured, but it will also include an analysis of the ways in which career education's success as an educational reform movement has been evaluated.

Indicators of Success in Affecting Students

Any nationwide product evaluation of career education programs is hampered by the variety of ways in which the expected products of these programs are described and defined. Some single framework is necessary to structure the collection and analysis of data pertaining to the effects of career exploration, self awareness and occupational preparation activities on students' knowledge, attitudes and skills.

An appropriate starting point for constructing such a framework is the USOE Office of Career Education's policy paper, An Introduction to Career Education (1974). Listed in the paper are nine learner outcomes expected to result from an effective career education effort: (1) Academic achievement, (2) good work habits, (3) meaningful work values and a desire to work, (4) career decision-making and employment-seeking skills, (5) entry level occupational skills, (6) career choice, (7) awareness of continuing education opportunities, (8) successful job placement and (9) incorporation of work values into personal values.

Also in 1974, the Office of Career Education published the Handbook for the Evaluation of Career Education Programs which was prepared by Development Associates, Inc., of Washington, D.C. The Handbook offers an objectives-based definition of career education which not only includes most of the goal areas mentioned in the policy paper, but also expands upon these outcome areas by specifying the kinds of knowledge, skills and attitudes students would demonstrate in achieving each goal. The Handbook's 33 objectives were reportedly the result of the examination of federal legislation and policy, descriptions of federal, state and local efforts to implement career education in all 50 states and a variety of publications dealing with career education. State and local practitioners met to discuss and reach consensus on the objectives. Considering this broad developmental base, the objectives' apparently close relationship to the goals listed in the policy paper and the straightforward, specific style in which the objectives are stated, it was decided that the *Handbook's* objectives would best serve as the framework for analyzing data for this study.

Four of the nine goal areas listed in the *Handbook* concern outcomes which have been investigated in the earlier sections of this report. The five goal areas and accompanying objectives which will be the subject of this part of the study are as follows:

I. Students will demonstrate increased self awareness:
    A. Students will be able to describe their own current abilities and limitations.
    B. Students will be able to describe their own current interests and values.
    C. Students will display positive attitudes toward themselves.
    D. Students will recognize that social, economic, educational, and cultural forces influence their development.

VI. Students will demonstrate good work habits:
    A. Students will be able to plan work effectively.
    B. Students will be able to adapt to varied work conditions.
    C. Students will have a positive attitude towards the concept of quality in relation to a work task.
    D. Students will have a positive attitude towards conservation of environmental and human resources in accomplishing work tasks.
    E. Students will have a positive attitude towards responsibility

for their own behavior and accomplishment of self-imposed work tasks.

F. Students will demonstrate a desire for continuous learning, both in school and out.

VII. Students will demonstrate work-seeking and work-getting skills:

A. Students will be able to identify, locate, and utilize sources that contain information about existing paid and unpaid work possibilities.

B. Students will be able to demonstrate skills required in applying for and accepting work.

VIII. Students who are leaving the formal education system will be successful in being placed in a paid occupation, in further education, or in unpaid work that is consistent with their current career education.

IX. Students will be aware of means available for continued education once they have left the formal education system:

A. Students will be able to identify souces of additional education in major types of paid and unpaid work.

B. Students will be able to identify means to support additional education for themselves in major types of paid and unpaid work. (Development Associates, Inc., pp. 6-8.)

Most of the student outcomes being measured by current career education projects are classifiable under one of the 15 objectives listed above or are classifiable under the objectives covered by the previous sections of this report. Those student outcomes which seem to have no relationship to these objectives will be treated separately.

Indicators of Success in Influencing Educational Systems

The Office of Career Education policy paper introduces career education as a reform movement designed to correct a number of social and educational problems ranging from student apathy to worker alienation. The paper begins,

> Career education represents a response to a call for educational reform. This call has arisen from a variety of sources, each of which has voiced dissatisfaction with American education as it currently exists. Such sources include students, parents and the business-industry-labor community, out-of-school youth and adults, minorities, the disadvantaged, and the general public. While their specific concerns vary, all seem to agree that American education is in need of major reform at all levels. Career education is properly viewed as one of several possible responses that could be given to this call (USOE, Office of Career Education, 1974, p. 13).

Included in the paper is a list of "career education tasks" that must be done in order for a comprehensive career education program to be considered operational. These tasks are the activities which teachers, business-industry-labor representatives, guidance and counseling personnel, parents, school administrators and school boards are urged to carry out in order to make a credible response to the demands for educational reform. The implication of this list of operational tasks is that, were they to be implemented in their entirety, the reforms sought by career education advocates would begin to take place. Involving parents, educators and community representatives as outlined in the "career education tasks" is an indication that the success of the career education as an educational movement reform is imminent.

The changes in educational policy and practice advocated by the career educator, according to the policy paper, are difficult and can come about only after long study and debate. Any of the 14 changes listed, if they were to actually come about, could be considered indicators of the success of career education as educational reform. The changes sought are these:

1. Substantial increases in the quantity, quality and variety of vocational education offerings at the secondary school level and of occupational education offerings at the post-secondary level.

2. Increases in the number and variety of educational course options available to students with a de-emphasis on the presence of clearly differentiated college preparatory, general education, and vocational education curricula at the secondary school level.

3. The installation of performance evaluation, as an alternative to the strict time requirements imposed by the traditional Carnegie unit as a means of assessing and certifying educational accomplishment.

4. The installation of systems for granting educational credit for learning that takes place outside the walls of the school.

5. Increasing use of non-certificated personnel from the business-industry-labor community as educational resource persons in the educational system's total instructional program.

6. The creation of an open entry-open exit educational system that allows students to combine schooling with work in ways that fit their needs and educational motivations.

7. Substantial increases in programs of adult and recurrent education as a responsibility of the public school educational system.

8. Creation of the year-round public school system that provides multiple points during any twelve-month period in which students will leave the educational system.

9. Major overhaul of teacher education programs and graduate programs in education aimed at incorporating the career education concepts, skills and methodologies.

10. Substantial increases in the career guidance, counseling, placement and follow-up functions as parts of American education.

11. Substantial increases in program and schedule flexibility that allow classroom teachers, at all levels, greater autonomy and freedom to choose educational strategies and devise methods and materials they determine to be effective in increasing pupil achievement.

12. Increased utilization of educational technology for gathering, processing and disseminating knowledge required in the teaching-learning process.

13. Increases in participation in educational policy making on the part of students, teachers, parents, and members of the business-industry-labor community.

14. Increases in participation, on the part of formal education, in comprehensive community education and human service efforts. (USOE, Office of Career Education, 1974, pp. 25-26.)

Most of the process measures employed by current career education projects are classifiable under one of the 27 "career education tasks" listed in the policy paper or are directly classifiable as contributing to one of the 14 changes in educational practice listed above. Those which seem to have no apparent relationship will be treated separately.

Taking product and process evaluation measures together, 56 indicators of the success of career education efforts have been identified. These represent, then, the ways people could try to assess the effectiveness of career education other than the assessment of improvements in students' academic achievement, career awareness and decision-making skills. The "career education tasks" being conducted by career education projects must be considered means to two interrelated sets of ends: Positive outcomes for students and desired changes in public educational policy and practice. Figure 1 illustrates these interrelationships.

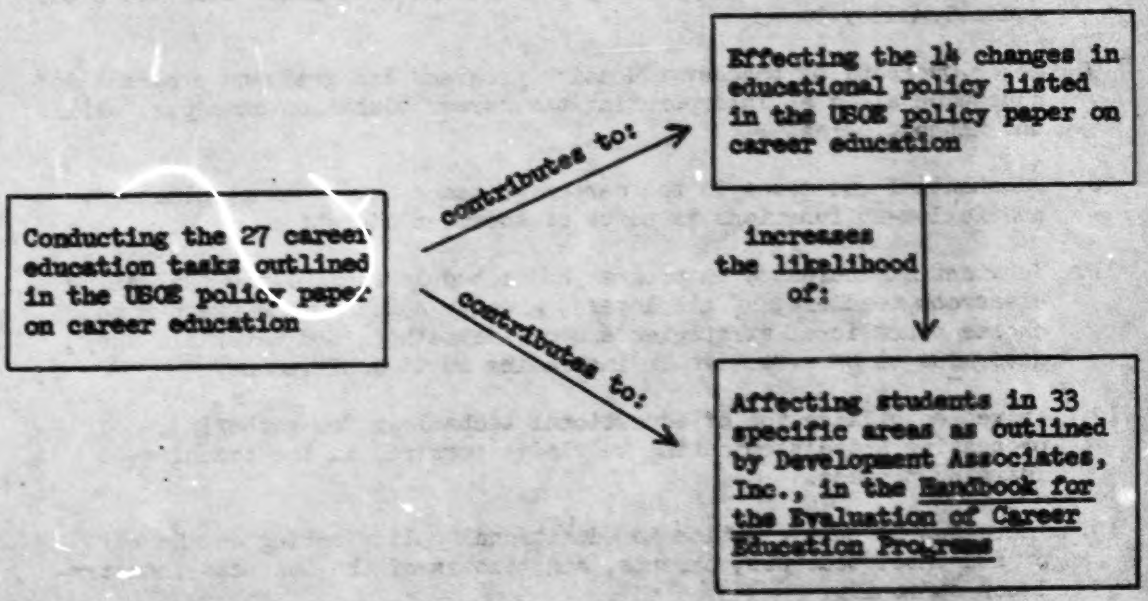
Effecting the 14 changes in educational policy listed in the USOE policy paper on career education
contributes to:
Conducting the 27 career education tasks outlined in the USOE policy paper on career education
increases the likelihood of:
contributes to:
Affecting students in 33 specific areas as outlined by Development Associates, Inc., in the Handbook for the Evaluation of Career Education Programs

Figure 1. Relationship of Career Education Processes to the Expected Outcomes of Career Education

Sources of Information for This Study

The time available for the completion of this study was too short to permit an exhaustive survey of the evaluation methods and measured results of the many career education projects which have been conducted in the past four years. Instead, information was sought from four distinct sources with the intention of sampling a range of professional perspectives on the issue of the efficacy of career education.

The major source of factual information about the results of current programs was career education practitioners themselves. Seventy-six (76) project directors were selected and asked to complete a mailed questionnaire. Each project met at least two of the following four criteria:

1. The project was named by a state coordinator of career education as one which, to his/her knowledge, had made a systematic effort to evaluate its impact.
2. The project is located in a state named by Smoker (1974) as having made exceptional progress toward the full implementation of the career education concept.
3. The project is sponsored by a school district revealed by Smoker's study to have made substantial systemwide efforts to implement career education.
4. The project is identified by Smoker as having received recognition in current literature for developing a comprehensive approach to career education.

Another important source of information used in conducting this study was the current literature on career education, particularly that sponsored or published by the U.S. Office of Career Education and the Education and Work

Task Force of the National Institute of Education. These sources were instrumental in the formulation of hypotheses regarding the issue of the efficacy of career education and the subsequent construction of inquiries and questionnaires mailed to career educators and other potential sources of information.

To balance the perspectives of the career education practitioners who responded to the survey and the publications of the Office of Career Education and the National Institute of Education, recent NIE contractors and the research directors from 65 large school districts were also asked for input. The contractors were selected from abstracts of projects funded by NIE in FY73 and FY74 and listed in their publication, Career Education Program: Program Plan for Fiscal Year 1975. Those projects were selected which dealt most directly with the evaluation of career education programs and whose major emphases included career exploration or occupational preparation. Directors of research in school districts having enrollments of 50,000 or more were identified from a directory prepared by the Houston (Texas) Independent School District in February, 1974.

Copies of the questionnaires and inquiries sent to career educators, NIE contractors and research directors are appended to this report. The questions these letters and questionnaires were designed to answer fall into two general categories: (1) Questions pertaining to the known results and effects of career education programs and (2) questions pertaining to the methodology applied in identifying program results and effects. The last category was considered important in establishing the credibility of reported program results and in identifying promising alternatives to the evaluation of developmental educational programs initiated at the national policy-making level.

Profile of the Career Education Projects Studied

The career education projects which supplied information for this part of the study probably represent the best efforts of the nation's career educators. By being located in states which were recognized in a national survey (Smoker, 1974) as having made significant commitments to the implementation of career education, these projects have had the support and assistance of state education officials for several years. By having been named by their states' career education coordinators as having demonstrated the impact of their efforts, they are more likely than lesser known projects to have developed convincing methods of evaluating and disseminating program results.

Of the 76 projects surveyed, 32 (42%) responded by supplying a completed survey and/or an evaluation report. Of the 65 inquiries made to large-district research directors, 17 (26%) returned completed survey forms. Seven of these supplied project evaluation materials. Two of NIE's Experience Based Career Education projects also supplied written project information. All together, 41 projects were examined for this report. Of these 41 projects, 26 described their evaluation results on the survey form or supplied written reports from project evaluators. The findings reported in the following sections are based on information supplied by these 26 projects. All 41 responding projects are listed in the appendix.

The typical project in the study sample is partially or entirely funded by federal Vocational Education Act funds, has been in operation at least three years and serves a K-12 student population. Eleven projects are funded at either the local or state levels and receive no federal support.

All of the projects reported having at least one program component relevant to this part of the study. Thirty-five (35) reported having career exploration components, and 34 reported having self-awareness components. Only about half of these (18) reported job placement components. Occupational preparation in the form of classroom instruction is provided by 29 projects, and work experience programs are conducted by 25 projects.

The survey form asked which of 13 goal areas are being addressed by each of the projects surveyed. Of the 34 responding to this item, the numbers reporting having goals in each of the relevant goal areas are listed below.

Knowledge of good work habits	26
Competence in career decision making, job-hunting skills, job-getting skills	20
Entry level occupational skills	14
Knowledge of continuing education opportunities	19
Successful placement in paid occupation, further education or vocation	11
Positive student attitude toward the program	23
Positive teacher or administrator attitude toward the program	23
Community knowledge and support of the program	20
Student knowledge of their interests and abilities	29

From 1 to 10 percent of the projects' budgets are allocated for evaluation of their programs. Seventeen (17) projects reported having internal evaluators on their staffs, most of whom were assigned part time. Twenty-seven (27) projects have contracted with external evaluators in addition to or instead of having an evaluator on their staffs. Most external evaluators are private consultants rather than university specialists. The kinds of evaluation designs employed, the instrumentation used and the nature and reliability of these projects' evaluation findings are discussed in the remaining sections of this report.

Career Education's Impact on Students

Few of the projects in the study sample measured student outcome variables which were clearly related to the student outcome statements listed by Development Associates, Inc., in the Handbook for the Evaluation of Career Education Programs. Although the greatest variety of measured student outcomes were found to be associated with career exploration activities, it is difficult to separate the potential outcomes of career exploration from those of career orientation, career motivation or career awareness activities. There seem to be no mutually exclusive operational definitions of these components. It is apparent from project descriptions that career exploration is a later stage of career development, but these project descriptions are quite imprecise when it comes to naming program activities and student outcomes that relate only to the concept of career exploration.

In addition to career exploration outcomes, career educators have also examined student outcomes in the areas of self-awareness and job placement. Little or no attention seems to be being paid to the evaluation of occupational preparation programs.

Impact on Students' Self-Awareness

Table 1 on the following pages describes seven projects' efforts to measure their programs' effects on student self-awareness. The Self Observation Scale published by the National Testing Service of Durham, North Carolina, and the Career Maturity Inventory published by CTB/McGraw-Hill are nationally normed instruments, while the remaining instruments listed in the table were locally developed. Unless the numbers of students and teachers surveyed by the New York project are exceptionally large, the differences in percentage of respondents giving desired answers to the survey items are not

Table 1. Career Education's Impact on Student Self-Awareness

OUTCOME	PROJ. LOCAT.*	GRADE LEVEL	DESIGN AND INSTRUMENTATION	RESULTS	ASSOCIATED ACTIVITIES
Positive self-concept	New York (2)	3, 6	"Understanding Myself" Survey administered to participants and a control group as a pretest and a posttest	4% more participants than control group students selected desired responses	(None given)
	(Same)	(Same)	Classroom Teacher Observation Form completed pre- and post by participants' and control group's teachers	5.3% more of the participants' teachers selected the desired responses	
	(Same)	(Same)	"Assessing My Child in School" Survey completed pre- and post by participants' and control group's parents	No significant differences	
	Missouri	K-8	Student Attitude Survey administered pre- and post	Significant positive change on Attitude Toward Self Scale at primary level; significant reduction in negative attitudes at grades 4-8	6 career education curriculum units and five 2-day workshops for teacher facilitators
	Oregon (2)	3, 6	Self Observation Scale (Grade 3) and Self Appraisal Inventory (Grade 6) administered at end of second year of project	Grade 3 below norm in Self-Acceptance, School Affiliation, Achievement Motivation; above norm in Social Maturity and School Affiliation. No base for comparison for Grade 6	Presence of Career Awareness Resource Teacher

*See list of respondents in appendix for names of projects and cities in which they are located.

Table 1. Career Education's Impact on Student Self-Awareness
(Cont.)

OUTCOME	PROJ. LOCAT.*	GRADE LEVEL	DESIGN AND INSTRUMENTATION	RESULTS	ASSOCIATED ACTIVITIES
Ability to express opinions openly in class	Ohio (5)	K-6	No formal assessment; observation only	Students appeared better able to form and express their opinions	Cross-age models, role-playing
General Self-Awareness	New Jersey (5)	Not Spec.	Career Maturity Inventory, Part 1, given to participants and a control group	Results positive in favor of participants but not at the 5% level	(None given)
	North Carolina	3, 6	Self Observation Scale given at project schools and control schools	Grade 3 participants' SOS scores significantly higher than control group; no difference between 6th grade groups	Resource persons visiting the classrooms
	Arizona (2)	4-12	Four questions on the "Careers Test" answered by high-exposure and low-exposure students	Students in the high exposure group have higher performance expectations, see themselves as brighter and are more certain of attaining their educational and occupational aspirations	(None specified)

*See list of respondents in appendix for names of projects and cities in which they are located.

likely to be statistically significant. The North Carolina project used regression analyses to identify the use of resource persons in the classroom as being associated with the improvement in the third graders' self-concepts. All other associated activities were subjectively identified as being significant contributors to project success in improving student self-concept.

Measured Career Exploration Outcomes

The kinds of outcomes career educators have made some deliberate attempts to measure in the area of career exploration are described in Table 2. Included in this summary are evaluation results for program components such as career motivation and career orientation as well as for components specifically referred to as career exploration. Generally speaking, the programs being conducted in these areas involve the in-class exposure of students to the 15 USOE career clusters. Little or no information was supplied about the kinds of classroom activities used as vehicles for exposing students to careers, and no project evaluation attempted to identify any relationships between particular student outcomes and the kinds of exploration activities in which they participated. Consequently, no data were available for estimating the relative effectiveness of different kinds of career exploration activities.

For the outcomes and projects listed, it appears that positive student outcomes are more likely to result at the middle or junior high school level than at the elementary level. Elementary students' attitudes toward work and careers, their ability to relate occupational options to their own interests and abilities and their ability to make realistic occupational choices seem unaffected by participation in a career education program.

At the junior high school and high school levels, reported results were positive in all but one case. The North Carolina project failed to demonstrate

Table 2. Career Exploration Outcomes

OUTCOME	PROJ. LOCAT.*	GRADE LEVEL	DESIGN AND INSTRUMENTATION	RESULTS	ASSOCIATED ACTIVITIES
Positive attitude toward work	Ohio (1)	5,7,9	Criles' Career Attitude Scale given to project students and a comparison group	No significant change in either group's scores in comparison with national norms	(Not specified)
Awareness of the personal and social significance of work	Ohio (7)	K-6	No instrument used; observation only	Increased student awareness evident at project schools' Career Education Day programs	(Not specified)
Positive attitudes toward careers and the career choice process	New Jersey (5)	Not Spec.	Junior Inventory of Motivation given to project students and a control group	Results positive in favor of project students but not at the 5% level	(Not specified)
	Ohio (7)	1-3, 4-6	Locally developed test given to project students and a control group	6.5% more project students than control group students knew the necessity and importance of a wide range of work; 14% more at intermediate level	(Not specified)
	Missouri	K-3	Student Attitude Survey given pre and post	No significant change in Attitudes Toward Work Scores	(Not specified)

*See list of respondents in appendix for names of projects and cities in which they are located.

Table 2. Career Exploration Outcomes
(Cont.)

OUTCOME	PROJ. LOCAT.*	GRADE LEVEL	DESIGN AND INSTRUMENTATION	RESULTS	ASSOCIATED ACTIVITIES
Awareness of the relationship of school to work	New York (2)	Not Spec.	"Understanding Myself" Survey for students, Classroom Teacher Observation Form for teachers and "Assessing My Child in School" Survey for parents given pre and post to project participants and a control group	6.5% more project students aware of school-work relationships; 10.8% more project parents reported increased student awareness of school-work relationships	(Not specified)
	Ohio (4)	8	Career Test, Relationship of A Life Related Learning Activity to the Working World, given to project students at end of year	40-57% of students performed above "the established norm" in the Test's three exercises	(Not specified)
	Calif. (4)	7-12	Survey completed by project students at beginning and end of project's three years	Little change in the high percentage (82.4%) of students who said that career education could help them understand certain other subjects or in the percentage (86%) who said school could help them prepare for work	(Not specified)
	Ohio (7)	4-6, 7-8	Student survey administered to project students and a comparison group at the end of the year	21% more intermediate and 8.1% more junior high students in project felt school was helping them prepare for work than in comparison group	(Not specified)

*See list of respondents in appendix for names of projects and cities in which they are located.

Table 2. Career Exploration Outcomes
(Cont.)

OUTCOME	PROJ. LOCAT.*	GRADE LEVEL	DESIGN AND INSTRUMENTATION	RESULTS	ASSOCIATED ACTIVITIES
Awareness of the relationship of school to work	North Carolina	7	Career Based Curriculum Goals Test given to project students and a control group	No significant difference in students' reasons and their perceptions of adult reasons for going to school	(Not specified)
Ability to make and justify tentative occupational choices	Ohio (7)	4-6, 7-8	Student survey administered to project students and a comparison group at the end of the year	No difference between project and comparison students in grades 4-6; a 34% difference in favor of project students in grades 7-8	(Not specified)
	North Carolina	7	"Career planning knowledge" section of Career Development Test given to project and control groups	Project students scored significantly higher	(Not specified)
	New Jersey (5)	Not Spec.	Career Maturity Inventory, Part 3, given to project and control groups	Results positive in favor of project students, some significant at 1% level	(Not specified)
	Arizona (1)	7-8	Survey of Occupational Cluster Interest given at end of year	85% completed instrument satisfactorily	(Not specified)
Interest in a wide variety of job clusters	Arizona (1)	6-8	Project designed interest surveys at end of year	Interest expressed in all 15 job clusters, ranging from 2% to 21% in each cluster, indicating students are making independent decisions	(Not specified)
	Arizona (2)	9-12	Careers Test given to high exposure and low exposure students	Significant difference (.001) in range of interest shown by the students in the high exposure group	(Not specified)

*See list of respondents in appendix for names of projects and cities in which they are located.

Table 2. Career Exploration Outcomes (Cont.)

OUTCOME	PROJ. LOCAT.*	GRADE LEVEL	DESIGN AND INSTRUMENTATION	RESULTS	ASSOCIATED ACTIVITIES
Knowledge of good work habits	New Jersey (2)	Not spec.	Teacher made tests given to project students at end of year	85% of students gave desired responses	(Not specified)
	North Carolina	7	Career Based Curriculum Goals Test given to project and comparison groups at end of year	A significant difference in favor of the control group	(Not specified)
Knowledge of continuing education requirements and opportunities	New Jersey (2)	Not spec.	Project developed questionnaire developed by guidance department	90% gave desired response to the questionnaire	(Not specified)
	New Jersey (5)	Not spec.	Career Maturity Inventory, Part 4, given to project and comparison groups	Results positive in favor of project students, some significant at the 10% level	(Not specified)
	Arizona (2)	4-12	Careers Test given to high exposure and low exposure students	High exposure students' knowledge significantly higher at the .001 level	(Not specified)
Awareness of relationship between personal interests and abilities and work roles	North Carolina	3,6	Career Based Curriculum Goals Test, given to project students and a control group	No significant differences between the two groups	(Not specified)

*See list of respondents in appendix for names of projects and cities in which they are located.

Table 2. Career Exploration Outcomes
(Cont.)

OUTCOME	PROJ. LOCAT.*	GRADE LEVEL	DESIGN AND INSTRUMENTATION	RESULTS	ASSOCIATED ACTIVITIES
General reaction to career exploration activities	Colorado	7	Locally prepared questionnaire completed by participating students on a voluntary basis	[illegible]0.7% liked the variety of classes offered in the exploration program, boys' and girls' interests markedly different	(Not specified)
	Ohio (7)	7-8	Student survey at end of year to project students and a comparison group	92% of project students feel a specific effort is being made to help them in career planning; 72% of comparison group expressed this feeling	(Not specified)
	Pennsylvania (1)	6,7,8	Student attitude survey at end of year	Mean ratings of the career orientation program were positive at all levels	(Not specified)

*See list of respondents in appendix for names of projects and cities in which they are located.

any impact on seventh graders' awareness of the relationship of school and work, and found that a seventh grade control group had better work habits as defined by the evaluation instrument they had developed. In most of the other cases, career exploration participation resulted in positive changes in knowledge or attitudes that were significantly greater than changes measured among control or comparison groups. In the case of some of the projects, no statistical comparisons were made, or measures were made only once instead of on a pre-post basis, so it is uncertain as to whether the reported results are replicable or even attributable to participation in the career exploration experience.

Effects of Occupation Preparation and Job Placement Programs

Although 18 of the surveyed projects reportedly have job placement components and 29 have occupational preparation components, only three projects attempted to describe effects on participating students. In-school occupation preparation programs are conspicuously absent from the program descriptions supplied by the surveyed projects, and work experience programs are mentioned only infrequently. No attention is given in the projects' lists of anticipated student outcomes to the high school graduate's need to possess a salable skill if s/he does not plan to enroll in a postsecondary educational program.

A student follow-up survey from a large Oregon school district showed that 95 percent of the 1967, 1969, 1973 and 1974 graduates felt that schools should help students develop employment skills and competence to enter the job market. Eighty-seven (87) percent felt placement services should be available to all high school students. In contrast, when asked how they obtained their first job after high school, less than six percent said they had received help from a teacher or a counselor or had gotten a job through a work experience assignment.

Another, smaller, Oregon school district which had conducted a career education program for three years surveyed its high school graduates for 1972, 1973 and 1974. Students who had taken career cluster courses and cooperative work experience in high school were found to be more likely to be working in their chosen career area than vocational, academic or general studies students. More vocational and cluster students said their high school experience had helped prepare them for their chosen career area. It was also found that more 1974 graduates than 1972 graduates made tentative career choices before leaving high school.

In Pennsylvania, a project called a vocational education counseling system which had job placement as one of three project components reported having placed in jobs 100 of 1,878 students interviewed. The evaluation report does not state whether this number of placements was satisfactory or not. An attitude survey of 75 former Cooperative Work Experience students failed to yield enough replies to estimate the effectiveness of the counseling and placement services offered them.

A Wisconsin project which established numerous contacts with local employees and the state employment agency and which offered a variety of employment counseling services reported that "the number of students who took advantage of these opportunities could have been greater." Though students had received increased placement services since the last year, two problems were cited as barriers to greater success: (1) High school placement personnel needed to become more knowledgeable about careers and (2) the role of the counselor needed to be changed.

High school students in an Arizona career education project were asked, "If you had to leave school at the end of this year, how well prepared are you to find a job?" Sixty-five (65) percent of the students said they were prepared while 52 percent of the students not involved with the project said they felt prepared. These same students completed an instrument which measured their preparedness for employment in several occupational clusters, their ability to complete job applications and their ability to differentiate between an entry level job and future mobility within a job cluster. Although project participants did significantly better on this instrument than students not involved in the project, fewer than a third of the students demonstrated these employability skills.

Student Attitudes Toward Career Education

Nearly half of the projects for which evaluation results were supplied demonstrated interest in students' general reactions to participation in a career education program, either in terms of their attitudes toward career education or their attitudes toward school. Table 3 summarizes the results of these projects' efforts.

Generally speaking, students respond positively to participation in career education activities regardless of grade level or type of program. There is some indication that student attitudes toward school become more positive after participating in career education activities. Although these results are encouraging, many projects rely almost exclusively on subjective attitude measures as indicators of project success and of those who do, many do not utilize pre-post measures and/or comparison or control groups in arriving at their conclusions. The third party evaluator for a large California project

Table 3. Career Education's Effects on Student Attitudes

OUTCOME SOUGHT	PROJ. LOCAT.*	GRADE LEVEL	DESIGN AND INSTRUMENTATION	RESULTS
Positive attitudes toward the program and its services	Ohio (1)	7-10	Locally developed survey administered to project students and a comparison group	Positive; Career Orientation students (7-8) and Career Exploration students (9-10) rated the project significantly higher than students in the comparison groups
Positive attitudes toward classes and guidance services having a focus on careers	Wisconsin (1)	K-12	Informal observation; no documentation or quantitative data	Positive; Student attitude was dependent upon amount of exposure to career education activities, which in turn, was dependent upon classroom teacher acceptance and support of career education
Belief that career education is a growing influence	Calif. (4)	7-12	17-item student survey administered in 1973 and in 1975	No effect to negative; 65.2% of high school students responded favorably in 1974-75 compared with 62.4% in 1972-73; 45.1% of junior high school students responded favorably in 1974-75 compared with 73.2% in 1972-73
Positive attitude toward the program and toward school in general	North Carolina	3,6,7	Locally developed questionnaire at end of project year	Positive; third, sixth grade favorable toward program and school in general; more than 3/4 of 7th grade said they "enjoy school more than last year" and that "learning about careers makes school more interesting"
Positive attitudes toward a career exploration class	Colorado	7-8	Voluntary student response (59%) to a single questionnaire	Positive; 60% liked the variety of classes offered; 17.5% said they sometimes came to school when they didn't feel well just to be in their classes
Positive attitudes toward education, school curriculum, school resources, counseling, overall experience-based career education program	Pennsylvania (1)	10, 11 (first year) and 12 (second Year)	Assessment of Student Attitudes Survey given pre and post to 12th grade and control group; Student Opinion Survey given to all project students and control groups at midyear	Positive; 12th graders in program for 2 years showed significantly better attitudes toward school than students in a traditional high school; all participants highly favored the program in comparison to their regular high school program

*See list of respondents in appendix for names of projects and cities in which they are located.

Table 3. Career Education's Effects on Student Attitudes
(Cont.)

OUTCOME SOUGHT	PROJ. LOCAT.*	GRADE LEVEL	DESIGN AND INSTRUMENTATION	RESULTS
Positive attitudes toward experience-based career education program	West Virginia	12	Three student questionnaires, two given at midyear and another at end of year	Positive; students consistently rated the EBCE program higher than their home high schools on opportunities to learn about occupations, motivation to learn and opportunities for general learning
Positive attitudes toward school and the school situation	New Jersey (5)	Not spec.	Junior Inventory of Motivation given to project students and a comparison group	Positive; in the direction of the project group but not significant at the 5% level
Increase in student interest in school	New York (2)	Not spec.	Use of attendance records	2.9% attendance increase from 1973-74 to 1974-75
Positive attitudes toward teachers, subjects, peers, school structure	Oregon (2)	1-6	School Sentiment Index given to students in 1974 and 1975 who had been in the program 1, 2, 3 or 4 years	Neutral; Between 1974 and 1975 a shift toward a less positive attitude although not significant; about 75% of students show positive attitude regardless of length of time in the program

*See list of respondents in appendix for names of projects and cities in which they are located.

cautioned against reliance on one-time self-report measures of attitudes:

> These data provide primarily perceptions and attitudes of project students based on self-report instruments. Although these data are useful, conclusive evidence of the impact of the project on student knowledge and attitudes would require comparison with a similar group of students not exposed to project activities. Furthermore, determination of actual changes in behavior and knowledge gained would require use of more objective assessment devices. These could take the form of observation of student behavior and instruments sampling knowledge of the areas specified in the project objectives.

Career Education's Emphasis on Process

In examining each of the project evaluation reports submitted for this part of the study, it was generally difficult to locate and compile student outcome data because most project officials appear to equate evaluation with the documentation of project activities and processes rather than with the documentation of the results or products of those activities. Many career education evaluation reports are a proliferation of meticulously outlined process objectives and carefully tallied evidence of the staff's progress toward completing these planned activities. Many State departments and local school districts all across the country reveal their serious commitment to the implementation of career education by producing elaborate long-range plans for the incremental integration of career education functions and processes into the educational mainstream. Anticipated effects of career education activities on the participating students' attitudes, skills and knowledge are rarely outlined in the same amount of detail and occasionally appear to have been added to a plan as "window dressing" or as an afterthought.

The processes and activities which receive the most attention from career educators fall into two categories, the first of which often appears to be a career education projects' only purpose:

1. Activities designed to change the traditional roles and behaviors of teachers and counselors.
2. Activities designed to increase the support for and involvement with education among members of the community, particularly parents and potential employers.

The first category may be further subdivided into activities related to the development and dissemination of career education materials and activities related to inservice training and consultation services for teachers and counselors.

In the case of the development and dissemination of career education materials, most projects reported the number of items produced and the number of teachers known to be using them in their classrooms. Almost all recorded attempts to evaluate the materials for production quality and instructional effectiveness involve asking teachers for general opinions in end-of-year surveys rather than applying any systematic criteria to the evaluation of specific items.

Inservice programs and consultation services for teachers and counselors are evaluated in terms of the numbers of people who enroll or the numbers who request project assistance, these data presumably being indicators of interest in career education and willingness to participate in its implementation. Some of the projects in the survey sample conduct periodic surveys to determine teachers' and counselors' attitudes toward career education concepts and their degree of support for the project. Students occasionally are asked to report the frequency with which their teachers introduce career education topics in their classes or the kinds and amounts of assistance they have requested from school counselors.

Parent and employer involvement activities are evaluated in much the same ways as educational staff development activities are evaluated. Numbers of parents who attend careers-related events at school are reported as evidence of their interest and involvement in their children's career development. Employers at work experience sites are asked to rate students' general attitude and performance at the work sites and are asked for their reactions to career education concepts and programs.

To convey the range of success the surveyed career education projects are experiencing with the implementation of career education processes in the above categories, the following excerpts from their evaluation reports are presented:

> The overall objective was to produce 250 [curriculum] units. A review of documents presented by the project staff indicates that 276 units were produced during the three-year project.... Thus, for all intents and purposes this overall objective was met so far as the quantity of curriculum units produced is concerned. (California - 4)

> When asked how much they had used career education teaching units, developed by subject matter teachers for their discipline, only three of ten responding staff members (29.2%) replied that they had used the units to a somewhat or great extent; one-half (50.0%) replied little or not at all. (Colorado)

> Twenty-five percent more teachers of grades K-6 and 61 percent of grades 7-8 provided four or more activities in 1974-1975 than in previous year. 1973-1974--62 percent of teachers provided four or more activities. 1974-1975--82% of teachers provided four or more activities... 80.5 hours of formal pre- and in-service in 66 sessions were provided with 1,804 persons logged in attendance with extent of participation of each group noted. (Arizona - 1)

> Using the California Department of Education and Ceres Unified School District goals as a model, 25% of Ceres Unified School District Elementary Staff will know the goals and objectives developed by the 1973-74 Career Education Matrix.... Objective met: 29% of elementary staff know the goals and objectives. See Appendix I for summary of evaluation data. (California - 1)

Do teachers have a positive attitude towards career education as a result of exposure to in-service training activities? Only twenty (20) percent of the 650 teachers responded to the attitude survey. Of those that did, all had a positive attitude towards career education and seemed to be quite knowledgeable about it. However, there were no differences in the attitude of teachers who attended the workshop and those who did not attend it. (Minnesota)

Involved teachers completed a staff reaction (evaluation) sheet. A total of eighteen (18) teachers completed the evaluation.... The majority of reports contained positive reactions and offered constructive suggestions. (Ohio - 4)

Local guidance staff increased their direct involvement in the career education program during Phase II. One counselor from each secondary school participated in each of the summer career education curriculum writing workshops in 1973 and 1974. During this time role descriptions were developed, and group guidance activities were developed.... The activities just described are but a few of the efforts to redirect guidance staff and services in the public schools. There can be little doubt that this grant has had an impact on improving guidance services to students and increased the involvement of guidance personnel in the career education program. (Wisconsin - 1)

Parents and personnel from business and industry were used as resource speakers and in an advisory capacity. Direct contact was made with parents for the purpose of explaining Career Education and its goals. The Post High School Opportunity Night program brought many parents into the school as well as numerous representatives of the business and industrial community. (Ohio - 5)

Ninety-two percent of the parents responded that the role of a parent in the career choice of a student is to encourage self-responsibility. ...Yet, when these same parents were asked how far in school they expected their children to go, ...only nineteen percent of the parents stated their children could decide for themselves. ...These findings indicate that much more work needs to be done with parents in order to expand their conceptualization of the economic marketplace. (Arizona - 2)

Business and industrial community response to a questionnaire showed that two-thirds of those returning the survey instrument were familiar with the Career Based Curriculum in the Union County Schools and two-thirds of those responding feel the "activities will be of substantial value to the community."

> Although the business and industrial community respondents indicated they don't believe career education is just another fad that will soon be forgotten, there was not consensus about career education as a secondary program only or as an integral part of the K-12 program. (North Carolina)

Career education projects' concentration on process rather than product evaluation is reasonable in light of the national goals for educational reform published in the Office of Career Education's official policy paper. Projects funded from the national level understandably could be expected to reflect the fervor for reform conveyed by An Introduction to Career Education. The desired reforms (listed at the beginning of this paper), however, represent substantial departures from educational practice and so must be striven for in an incremental fashion. By providing evidence of the degree to which their projects have been able to induce teachers, counselors, administrators, parents and members of the employment community to perform "career education tasks" like those listed in the policy paper, career educators are documenting their incremental efforts toward reform and are demonstrating how their projects are contributing to the success of career education as an educational reform movement. The relative amount of attention they devote to specifying and measuring the student outcomes of their projects is directly proportional to the priority implicitly assigned the learner outcomes listed in the policy paper.

Reliance on process evaluation methodology in assessing the success of career education programs may be the result of necessity rather than choice, however. The kinds of student outcomes sought from career education programs cannot easily be reduced to precise, observable behaviors which all career educators would readily agree represent the full range of behaviors implied in the general goal statements. Career education is a response to a general dissatisfaction with the "typical" American's ability to assume the responsibilities of being a productive member of adult society. Deducing the specific skills and knowledge needed to correct this situation is destined to be a difficult (and perhaps impossible) undertaking. Until such performance criteria are developed, however, product evaluation results will probably not be very convincing evidence of the efficacy of career education unless accompanied by substantial process evaluation information.

Another barrier to credible product evaluation is the status of career education measurement technology. Relatively few standardized evaluation instruments have been developed so far. Their applications to career education programs are limited, and their validity is in some cases yet to be established. In the absence of valid, reliable measures of career education outcomes, project developers have had to develop their own instruments. Restraints of time, money and skill appear to have prevented the development of local evaluation instruments that measure student ourcome as directly and as accurately as possible. Unless a project's staff includes an experienced evaluation specialist, it is unlikely that locally developed instruments will yield valid and reliable information about the project's impact on participating students.

Summary and Conclusions

The major purpose of this part of the report was to determine the efficacy of career education programs in areas other than academic achievement, career awareness and career decision making. Forty-one (41) career education projects responded to a survey designed to identify the effects on students of these other career education components, particularly career exploration, occupational preparation and job placement. About three-fourths of the responding projects were supported by Vocational Education Act funds (Parts C and D) while the remainder were funded at the state and/or local levels.

The student outcomes measured by the responding projects were loosely categorized into these areas: (1) Self-awareness, (2) career exploration, (3) occupational preparation and job placement and (4) general attitudes toward career education. From the data reported by the surveyed projects the following tentative conclusions can be drawn about the efficacy of career education in these four areas:

1. Participation in career education activities appears to have a positive influence on students' self-concept and general self-awareness, particularly in the primary grades. The amount of influence reported is extremely variable, however, ranging from no significant differences between participating students and control groups in a few projects to statistically significant increases in self-concept in other projects. Virtually no projects are able to relate outcomes in this area to specific program activities, so there is no way of establishing the relative effectiveness of different kinds of career education activities designed to increase student self-awareness.
2. Elementary and junior high school students involved in what projects term career motivation, career orientation and/or career exploration activities seem to respond differently. Elementary students seem less likely to acquire positive attitudes toward work and seem less capable of relating their interests and abilities to occupational options in making realistic tentative career choices. Most students like the activities in which they participate and develop more divergent career interests as the result of their participation.
3. Virtually no effort is being made to measure the effectiveness of occupational preparation and job placement programs. None of the projects surveyed had written objectives describing the intended out-

comes of such activities in terms of the occupational skills students should possess upon leaving school or the proportion of successful job placements expected.

4. Students in grades K-12 generally respond positively to participation in career education programs. Their attitudes toward career education and toward school in general appear to improve with increased exposure to career education programs and services.

The conslusions stated here are very tentative and should not be used in determining career education policies unless they are heavily supplemented by other kinds of information. Some of the reasons for urging such caution are listed below.

1. True experimental evaluation designs are seldom used in measuring program impact on students. When comparison groups are used, no apparent attempts to prevent contamination are made.
2. The objectives of the different career education components are ambiguous and often imprecise. What one "career exploration evaluation instrument" measures, for example, may be entirely different from what another instrument of the same title measures. Consistent results from a number of "career exploration evaluation instruments" could be very misleading.
3. The specific treatments comprising career orientation, career motivation, career exploration or any other program component are extremely variable and virtually no projects attempt to systematically identify what particular activity (or series of activities) is associated with what particular student outcome. Without this kind of information, evaluation findings have little value to someone who wants to design and implement a potentially successful career education program.

These findings are congruent with the findings and general conclusions of another, more rigorous study of the results of the first three years' efforts to implement programs under Part D of the Vocational Educational Act. Under contract with the USOE Division of Vocational and Technical Education, Development Associates of Washington, D.C., concluded in their March, 1975, report:

> Projects were typically not well defined in terms of purpose or clientele and this lack of clarity may relate to the failure in many projects to identify student outcomes significantly related to project activities (p. 3).
>
> A review of the stated objectives of the 50 projects reveal that in many cases the activities called for by the policy paper were not addressed. In addition, a comparison between stated objectives of projects and activity categories indicated that in many projects the performance of activities could not be related to the stated objectives (p. 4).
>
> The definition of key terms and concepts was neither precise nor consistent at either the federal or local levels. ...This failure to establish operational definitions and categories contributed to the inability of projects to identify with assurance participants in the programs and to the inability at the federal level to monitor project efforts effectively. (Development Associates, Inc., 1975, p. 6.)

In the course of examining the career education projects in the study sample for evidence of success in achieving desired student outcomes, it becomes apparent that an entirely different approach to evaluating project success is being used. This alternative to standard product evaluation is a kind of process evaluation designed to demonstrate career education's effectiveness as an educational reform movement. The relatively heavy emphasis on the processes and activities of career education in the USOE policy paper, An Introduction to Career Education, is proposed as one of the possible reasons for a penchant for counting the career education materials developed, disseminated and used, for counting the number of teachers and counselors who participate in inservice activities and for surveying parents and potential employers for their attitudes about career education concepts.

Other possible reasons for the heavier emphasis on process measures are the lack of clarity and consistency in career education goals and objectives and the lack of valid and reliable instruments for measuring program impact. Whatever the reason for career educators' concern for processes and their apparent lack of systematic attention to student outcomes, the evidence of success career education projects are able to produce is more clearly related to the presumed need for educational reform than it is to career education's success as an instructional innovation.

In summary, the career educator is finding it both desirable and expedient to focus evaluation efforts on gauging levels of support and acceptance for career education programs rather than on measuring such programs' short- and long-term influences on students' ability to link education and work in shaping their careers. Dr. Kenneth B. Hoyt, Director of the U.S. Office of Career Education, very accurately described the status of current career education evaluation efforts in his address to the March, 1975, USOE Career Education and Teacher Education Conference:

> It seems safe to say that the quantity of effort expended at the local school district level has exceeded the quality of that level by a very wide margin. Evaluation efforts, while generally yielding positive results, are found only infrequently and, by and large, are lacking in convincing quality. This lack of sound evidence of effectiveness has not seemed to dampen local enthusiasm for career education. It seems appropriate to say that, by and large, career education has been accepted on faith--and that an abundant amount of faith exists (p. 4).

Recommendations

Policy makers at the national level are in the best position to take advantage of the developmental work of the nation's career educators over the past four years. Practitioners of career education, given adequate direction and appropriate incentives, can draw upon their past experiences and make significant contributions to a national effort to define career education more clearly and identify the most effective strategies for achieving its goals. The enthusiasm reportedly being generated by current career education projects across the country in the absense of consensus as to what constitutes career education in practice and in the absence of convincing evidence of these projects' overall effectiveness should alert policy makers at all levels to the dangers of "oversell." Dr. Rupert Evans, in preparing the epilogue to the Office of Career Education's publication, Career Education: The State of the Scene, recognized this danger:

> The sudden popularity of career education may prove to be its own worst enemy, for almost everyone will try to use it for their own ends. Thus the key question may well be: what is not career education, and how can it be prevented from masquerading as the genuine article; thus diverting attention and resources from the goals and activities to which real career education is addressed? (p. 272)

Local, state and federal level career educators could work together to more clearly describe "the genuine article" and to more precisely define "the goals and objectives to which real career education is addressed" by taking the following steps:

1. Reach consensus on national career education goals in terms of student outcomes expected at each stage of career development.
2. Analyze these goals carefully and reduce them to performance criteria that can be used to guide the planning and evaluation of career education programs.
3. Educate program planners, local, state, and federal policy-making bodies, and those who administer career education projects about the means-end relationship between career education processes and career education products to prevent the development, approval and implementation of projects whose expressed purposes are to conduct activities

rather than to effect desired student outcomes.

4. Develop and standardize evaluation instruments that will reliably measure a program's effectiveness in helping students acquire the attitudes, skills and knowledge represented by the performance criteria resulting from the analysis of national career education goals.
5. Support career education projects which include carefully thought out plans for the systematic validation of program processes and the rigorous evaluation of program outcomes.

If career education is to become an integral part of education practice, practitioners and policy makers must be prepared to apply more than enthusiasm to the effort. Enthusiasm, conviction and the drive for reform are perhaps sufficient to create widespread commitment to career education, but if career education is to become a long term productive force in education, it is going to require much more. All career educators must be prepared to devote to the task a great deal of "conscious effort, other than that involved in activities whose primary purpose is either coping or relaxation, aimed at producing benefits for oneself and/or for oneself and others." In a word, career educators must be prepared to work.

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APPENDIX

Letter to State Career Education Coordinators
Letter and Survey Sent to Career Education Projects
Letter and Survey Sent to Large-District Research Directors
Career Education Projects Who Responded to the Survey

DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
OFFICE OF EDUCATION
WASHINGTON, D.C. 20202

July 29, 1975

TO: Each State's Coordinator of Career Education

FROM: Mr. John Michel, Acting Director of the National Advisory Council for Career Education.

The Council has recently contracted with four individuals to prepare a paper entitled, The Efficacy of Career Education. As a state coordinator of career education, you can direct these individuals to career educators in your state who have made systematic efforts to evaluate the impact of their programs. The Council is particularly interested in the evaluation methodologies and measured results of programs whose objectives invalue:

1) the development of career awareness
2) the maintenance or improvement of academic achievement
3) the development of career decisionmaking skills.

Other program emphases such as career exploration, career preparation and job placement are also of interest to the Council in their effort to establish the full impact of the career education programs around the United States.

In the space below, please enter the names of projects you feel should be included in the Council's study, and supply the contact information and program classification requested. Mail your list of projects in the enclosed self-addressed envelope. In order for your input to be considered in this study, it is important that your input be received no later than AUGUST 15. Thank you for your cooperation.

PROGRAM OR PROJECT TITLE AND FUNDING SOURCE	NAME, ADDRESS AND PHONE OF CONTACT PERSON	AREA(S) EMPHASIZED IN PROGRAM'S OBJECTIVES

TUCSON PUBLIC SCHOOLS
ROBERT D. MORROW EDUCATION CENTER
P.O. BOX 4040
1010 EAST TENTH STREET
TUCSON, ARIZONA 85717

September 9, 1975

Dear Career Educator:

Your state is recognized as one which has made significant progress in the implementation of comprehensive career education, and your state's career education coordinator has named your project as one which has made systematic efforts to measure the impact of career education. For these reasons I would like you to fill out the enclosed questionnaire about how your project is being evaluated and the results you have been able to document thus far.

The National Advisory Council for Career Education, which has commissioned this study, was established by Congress to assist practitioners with the implementation of career education programs and to recommend any needed changes in national career education policies and priorities. Establishing the efficacy of current career education efforts and disseminating promising evaluation strategies are some of the Council's first responsibilities, so your cooperation in responding to this questionnaire is very important.

Please return your completed questionnaire to me as soon as possible. Information about your project must be in my hands by September 26 in order for it to be included in the report to the Council. A stamped, self-addressed envelope has been enclosed to assist you in making a prompt reply.

Thank you for taking this opportunity to contribute to the improvement of strategies for evaluating career education and the formation of future national career education policy. I look forward to hearing from you soon.

Sincerely,

Sherrie Schager

Sherrie Schager
Research Specialist
Department of Research and
Evaluation

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Enclosures

Survey of Career Education Evaluation Practices
for the
National Advisory Council for Career Education

1. Name of your project:

2. Location and sponsoring agency:

3. Source of funding:
   - _____ Local or county
   - _____ State
   - _____ Federal (check source)
     - _____ VEA, Part C
     - _____ VEA, Part D
     - _____ PL93-380, Title IV
     - _____ Other: _____________

4. No. of years in operation at end of 1974-75 year: ________

   (If no longer in operation, give last year: _____________)

5. Grade level of participants:
   - _____ Elementary
   - _____ Middle or Junior High Sch.
   - _____ High School

6. Which of these groups, if any, are given special attention?
   - _____ Low-income
   - _____ Ethnic minority
   - _____ Female
   - _____ Handicapped
   - _____ Dropout or potential dropout

7. Program components:
   - _____ Career awareness
   - _____ Career exploration
   - _____ Self-awareness
   - _____ Career decision-making
   - _____ Job placement & follow-up
   - _____ Career preparation
     - _____ Classroom instruction
     - _____ Work experience
     - _____ Occupations not requiring a B.A.
     - _____ Occupations requiring a B.A. or more

8. For which of these areas does your project have written goals and/or behavioral objectives?
   - _____ Competence in basic academic skills
   - _____ Knowledge of good work habits
   - _____ Positive work values and a desire to work
   - _____ Competence in career decision-making, job hunting skills, job getting skills
   - _____ Entry level occupational skills
   - _____ Appropriateness of career decision, considering interests, abilities and career opportunities
   - _____ Knowledge of continuing education opportunities
   - _____ Successful placement in paid occupation, further education or vocation
   - _____ Positive student attitude toward the program
   - _____ Positive teacher or administrator attitude toward the program
   - _____ Community knowledge and support of the program
   - _____ Student knowledge of career clusters
   - _____ Student knowledge of their interests and abilities
   - _____ Other:

9. Percent of budget allocated for evaluation: _______%

10. Kind of evaluation assistance used:

_____ Internal evaluator
    _____ Full-time
    _____ Half-time
    _____ Less than half-time
_____ No evaluator is used

_____ External evaluator
    _____ University specialist
    _____ Private consultant
    _____ Other: _______________

11. Frequency of evaluation reports:

_____ Monthly
_____ Two or three times a year
_____ Annually
_____ (NO formal evaluation reports)

12. Evaluation design(s) used:

_____ One-time, end-of-program measures administered to:
    _____ Program participants only
    _____ Program participants and a control group
    _____ Program participants and a comparison group

_____ Pre- and post-program measures administered to:
    _____ Program participants only
    _____ Program participants and a control group
    _____ Program participants and a comparison group

_____ Some other design (describe):

13. Summarize your project's evaluation efforts for 1974-75 (or the last year of operation) on the chart on the next page. Fill in each column as follows:

Expected Outcomes: Each of the areas covered by your objectives (the ones you checked in Question No. 8).

Measurable Result Expected: The behavioral or performance outcome expected which applies to the outcome listed in the first column.

Data Collection: The method or instrument you used to collect the data.

Actual Results: The actual results, described as quantitatively as possible.

An example is given to help you fill in the chart. Instead of, or in addition to filling out the chart, you may enclose a project evaluation report summary. Copies of evaluation instruments you have developed and found useful would also be appreciated.

Expected Outcome	Measurable Result Expected	Data Collection	Actual Results
(EXAMPLE) Positive work values and desire to work	90% of students in the program will give desired response to 10 of 12 items on Attitude Survey	"Attitudes toward Work" survey prepared by project	82% gave desired response to at least 10 survey items

TUCSON PUBLIC SCHOOLS
ROBERT D. MORROW EDUCATION CENTER
P.O. BOX 4040
1010 EAST TENTH STREET
TUCSON, ARIZONA 85717

September 17, 1975

Dear Research Director:

I am currently under contract with the U.S. Office of Education to prepare part of a report for the National Advisory Council for Career Education describing the nature of career education evaluation strategies currently in use throughout the country. You can help me greatly by taking a few minutes to answer my questions and sending me any relevant reports your district has prepared. Your objective viewpoint will be especially valuable in the preparation of an accurate and informative report for the Council.

I am particularly interested in knowing the objectives, evaluation designs, instrumentation and measured results of career education programs initiated since 1971-72 involving 6th through 12th grade students in (1) career exploration activities, (2) preparation for occupations, particularly those requiring post-secondary education, (3) job placement and (4) post-graduation follow-up studies.

Your prompt reply to the enclosed questions will be greatly appreciated. A stamped, self-addressed envelope is enclosed for your convenience.

Sincerely,

Sherrie Schager

Sherrie Schager
Research Specialist
Research Department

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Enclosures

PLEASE RETURN BEFORE SEPTEMBER 30

Survey of Career Education Evaluation Practices
for the
National Advisory Council for Career Education

Your Name and Position:
Address:

1. Please describe your district's efforts to systematically evaluate the effects of career education programs for middle/junior high school and high school students since 1971-72:

_____ a. Our district did not conduct any career education programs of the type you describe between 1970 and the present.

_____ b. Such career education activities have been conducted, but to my knowledge, were not formally evaluated.

_____ c. Some career education activities of the kind you have described have been conducted and have been formally evaluated: (Check one.)

_____ (1) Summary(ies)/abstract(s) of evaluation results enclosed.
_____ (2) Full report(s) enclosed.
_____ (3) Report(s) available, but at a cost of _________.
_____ (4) No report(s) or report summary(ies) available.

_____ d. Such a program is presently being conducted, but no evaluation results are available yet.

2. Your professional opinion regarding any of the following questions or related issues would be very much appreciated. (Please indicate whether or not your remarks may be quoted in the report to the National Advisory Council: _____yes; _____no.)

a. What seem to be the positive outcomes of career education?
b. Which goals seem to be achieveable through which mechanisms?
c. What have been the most useful measures in judging the effectiveness of career education?
d. Which strategies serve which populations best at reasonable cost?
e. What are the relative costs, human and financial, of different approaches?
f. Which occupations are being studied effectively within schools, and which seem to require learning outside school walls?

Please use the space below and the back of this page for your comments. Thank you for your valuable assistance.

TUCSON PUBLIC SCHOOLS
ROBERT D. MORROW EDUCATION CENTER
P.O. BOX 4040
1010 EAST TENTH STREET
TUCSON, ARIZONA 85717

September 15, 1975

Dear

I am currently under contract with the U.S. Office of Education to prepare part of a report for the National Advisory Council for Career Education describing the nature of career education evaluation strategies currently in use throughout the country. You can help me greatly by sharing some of the knowledge and insights you may have gained in

My investigation is primarily concerned with the effects on junior high/middle school and high school students of programs involving career exploration, occupational preparation, job placement and student follow-up activities. I will be particularly interested in describing the objectives of such programs, the evaluation designs and instrumentation used and, of course, the measured results of these programs. In addition to any reports or materials you may be able to supply me pertinent to these issues, I would also like to have your professional opinion of the degree of progress you believe is being made in assessing the effectiveness of career education efforts. (Please indicate in your reply whether or not I may quote from your remarks in my report.)

Because your input will be especially valuable, I am looking forward to hearing from you soon.

Gratefully,

Sherrie Schager
Research Specialist
Research Department

Career Education Projects Who Responded to the Survey
(Listed alphabetically by location)

ARIZONA

1. Comprehensive Career Education Project
Roosevelt School District #66
Phoenix, Arizona

2. Pima County Developmental Career Guidance Project
Pima County Superintendent of Schools
Tucson, Arizona

CALIFORNIA

1. Ceres Model--Career Education Responsive to Every Student
Ceres, California

2. Pupil Personnel Services
Grossmont Union High School District
Grossmont, California

*3. Comprehensive Career Education Model
Los Angeles Unified School District
Los Angeles, California

4. Orange County Consortium Career Education Model K-14
Orange Unified School District
Orange, California

*5. Santa Barbara Career Education Project
Santa Barbara High School District
Santa Barbara, California

COLORADO

Exploratory Program in Careers (EPIC)
Denver Public Schools
Denver, Colorado

HAWAII

* Hawaii Career Development Continuum K-14
State Department of Education
Honolulu, Hawaii

IOWA

*1. Career Information System of Iowa
Iowa Department of Public Instruction
Des Moines, Iowa

*2. Comprehensive Career Curriculum
Des Moines Independent Community Schools
Des Moines, Iowa

MICHIGAN

Human and Computer Assisted Career Achievement Skills Training Program
Pontiac Public Schools
Pontiac, Michigan

MINNESOTA

Project CEASE--Career Education and Staff Enhancement
North Saint Paul-Maplewood Schools
Maplewood, Minnesota

MISSOURI

Career Education Project
St. Louis Public Schools
St. Louis, Missouri

* Not included in analysis because no evaluation results were submitted.

NEW JERSEY

1. Asbury Park Career Development Education Project
   Asbury Park Board of Education
   Asbury Park, New Jersey

2. Career Education K-12
   Jersey City Board of Education
   Jersey City, New Jersey

*3. Millville School System K-12
   Millville, New Jersey

*4. New Brunswick Career Education Model
   New Brunswick, New Jersey

5. Career Education
   Passaic Public Schools
   Passaic, New Jersey

6. Governor's Career Development Project
   Perth Amboy High School
   Perth Amboy, New Jersey

7. Career Education
   Salem, New Jersey

NEW YORK

*1. Project Open Door to the World of Work
   Buffalo Board of Education
   Buffalo, New York

2. New York State Consortium for Career Education
   Syracuse, New York

NORTH CAROLINA

Career Based Curriculum Project
Union County Board of Education
Monroe, North Carolina

OHIO

1. Career Education Project
   Cincinnati Public Schools
   Cincinnati, Ohio

2. Career Development Program
   Dayton City Schools
   Dayton, Ohio

*3. Career Education
   Geneva Area City Schools
   Geneva, Ohio

4. Career Continuum
   Southwestern City Schools
   Grove City, Ohio

5. Career Development Project
   Lorain City Schools
   Lorain, Ohio

*6. Mansfield Career Development Project
   Mansfield City Schools
   Mansfield, Ohio

7. Willoughby-Eastlake Career Education Program
   Willoughby-Eastlake City School District
   Willowick, Ohio

OREGON

1. Portland Public Schools—Area I
   Portland, Oregon

2. Exemplary Career Education Project
   Springfield School District #19
   Springfield, Oregon

PENNSYLVANIA

1. Career Education Program
   Research for Better Schools
   Philadelphia, Pennsylvania

* Not included in analysis because no evaluation results were submitted.

PENNSYLVANIA (cont.)

2. Selected Functional Components of a Vocational Education Counseling System for Urban Youth
   School District of Pittsburgh
   Pittsburgh, Pennsylvania

TENNESSEE

* SPAN Model Career Education
   Memphis City Schools
   Memphis, Tennessee

TEXAS

* Career Education Alternatives and Strategies through a Regional Process
   Education Service Center, Region 17
   Lubbock, Texas

WASHINGTON

* Career Education K-12
   Seattle School District
   Seattle, Washington

WEST VIRGINIA

Experience Based Career Education
Appalachia Educational Laboratory
Charleston, West Virginia

WISCONSIN

1. Research and Development Project in Career Education
   Eau Claire Joint District #5, et. al.
   Eau Calire, Wisconsin

*2. Career Education Consortium
   (no city given)

* Not included in analysis because no evaluation results were submitted.

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